

OS/2[®]

M A G A Z I N E

Reviews

AntiVirus 2.5
ColorWorks 2.0
15 OS/2 Books

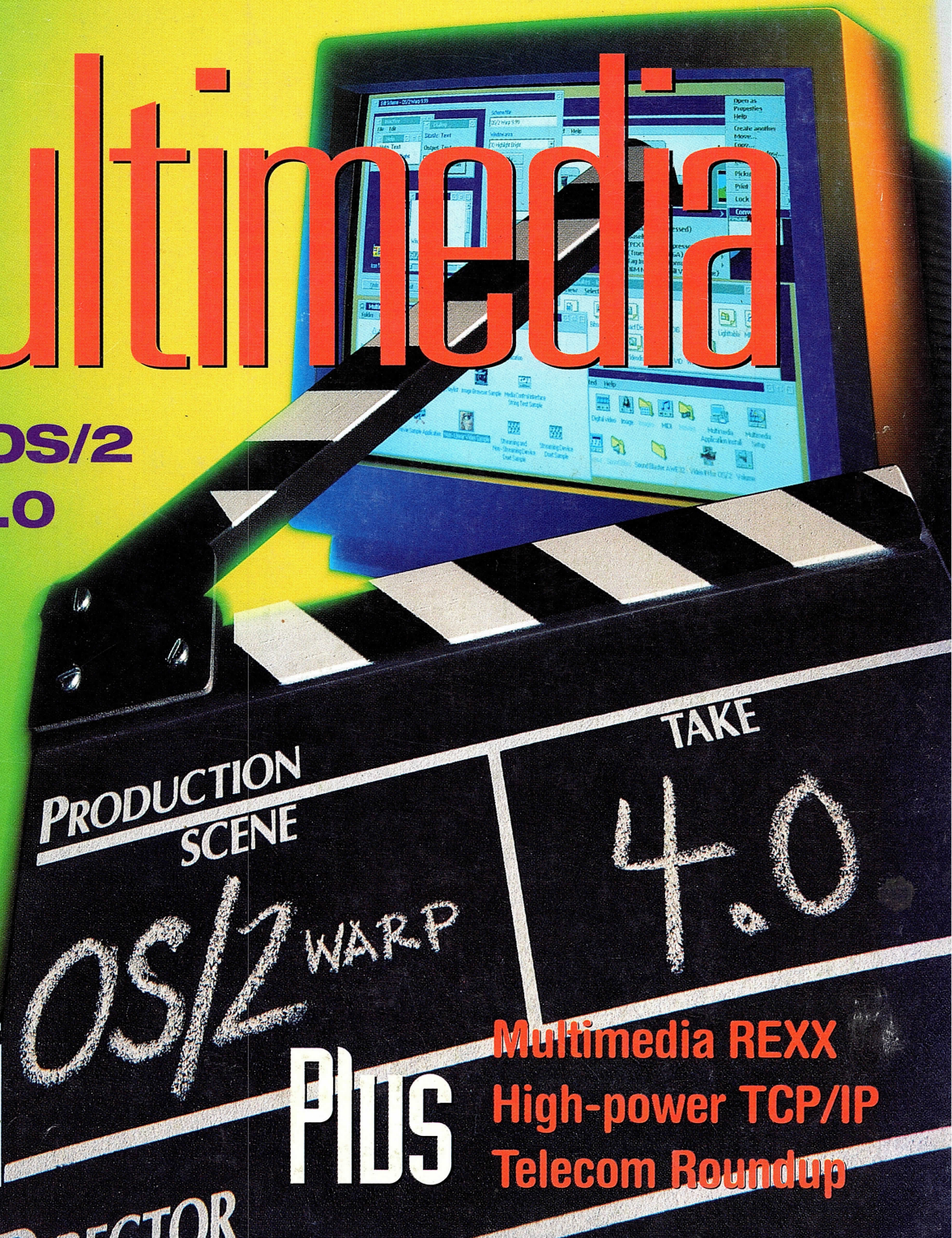
Multimedia

Under OS/2
Warp 4.0
Page 22

\$3.95 US/\$4.95 Canada



A Miller Freeman Publication



Plus

Multimedia REXX
High-power TCP/IP
Telecom Roundup



This Dog Learned A New Trick.

The Einstein Series: Now Preloaded With OS/2 Warp 4!

Because Einstein loves the voice recognition power of OS/2 Warp Version 4 (paws weren't made for typing, don't you know), Indelible Blue now offers the Einstein Series preloaded with OS/2 Warp 4, Object Desktop, KopyKat and more.

The Einstein Series is Indelible Blue's line of OS/2-ready computer systems designed around OS/2 certified hardware--preloaded and custom-configured to your specifications, and backed by a three year warranty.

Indelible Blue is proud to be a leader in the OS/2 community--a role we strive to maintain, because we're passionate about OS/2. Anyone can sell computer hardware, but we back it up with years of OS/2 experience and OS/2 knowledge.

When it comes right down to it, it's all about commitment, support and dedication. When it comes to OS/2 there's no place like Indelible Blue.

If you're looking for OS/2 answers, give us a call at 1-800-776-8284 or email us at hardware@indelible-blue.com

Galileo 133 with monitor

CPU	Intel Pentium - 133
Cache	256K Pipeline Burst
Chipset	Intel Triton VX
HDD	Western Digital 1.6 gig
Memory	16mb EDO Ram
CD-ROM	8X speed
Sound	16-bit SB Compatible
Speakers	10w Amplified
Video	2mb PCI S3 Trio 64
FaxModem	33.6kbps
FDD	3.5" Teac
Keyboard	Mitsumi AT style
Mouse	Mitsumi PS/2 Style
Case	Mid-tower
OS	OS/2 Merlin Preload
Warranty	1st Year
Monitor	Relysis 15" Flat screen
Total	\$2,109.00*

*price subject to change
components subject to availability

Reader Service No. 1



1-800-776-8284
<http://www.indelible-blue.com/ib>
For the latest OS/2 gear, call for our new catalog!



**Outfitters for the
Information
Frontier**

TM

OS/2 and IBM are registered trademarks of IBM Corporation. "Outfitters for the Information Frontier" is a trademark of Indelible Blue, Inc. All other registered trademarks belong to their respective owners. Prices subject to change.



"I started running OS/2 Warp Server on all my networks and guess what?

My rainy days are over."

Consolidate

It was time to consider consolidating his mixed environment network onto a single operating system, so Steve Conaway, Director of Computer Services at the Financial Times, decided to check out the new release of OS/2® Warp Server.

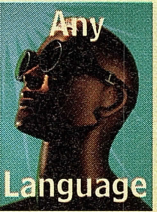
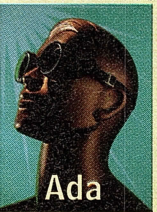
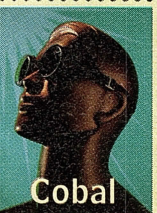
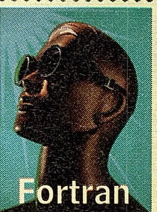
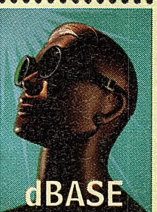
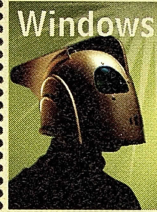
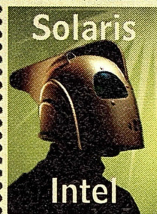
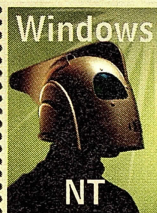
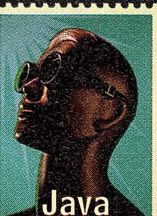
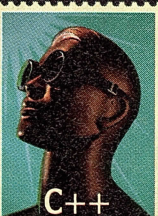
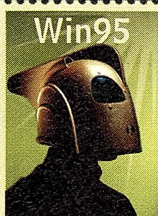
Within no time at all, Steve was waxing poetic over OS/2 Warp Server's ability to handle blockbuster-sized databases and make Internet and intranet access a breeze. He was also impressed with the advanced printing capabilities and management features that

simplified the running of both his network and his life. From now on, Steve definitely regards OS/2 Warp Server as his umbrella network operating system.

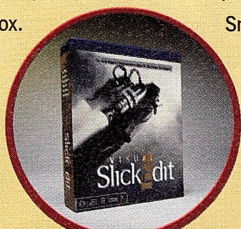
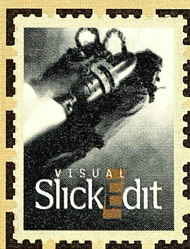
Find out what got Steve so excited. Call us at 1 800 IBM-2468, ext. EA130, or visit our website at www.software.ibm.com/info/ea130 for details on the best network operating system around. There's no better way to demonstrate fiscal responsibility.



Solutions for a small planet™



If you are currently
programming in
on a platform,
then is the
perfect editor for you.



VISUAL SLICKEDIT 2.0

Only Visual SlickEdit® can fill your every programming need, right out of the box. With it, you'll have superior power, speed and flexibility. Programming in any language, on any platform—even UNIX—is effortless. Deploy a single full-featured editor throughout your entire organization; and access an

unprecedented array of features, including SmartPaste™, API Apprentice™, a C/C++/Java code beautifier and difference editing. Plus, thanks to MicroEdge's 30 day risk-free trial, you can try it all for free. Call for your copy. And get ready to give Visual SlickEdit 2.0 your own personal stamp of approval.

THE MOST POWERFUL PROGRAMMER'S EDITOR ON THE PLANET. AND BEYOND.

CALL 1 800 934 EDIT (3348)

or WWW <http://www.slickedit.com>

VISUAL
SlickEdit

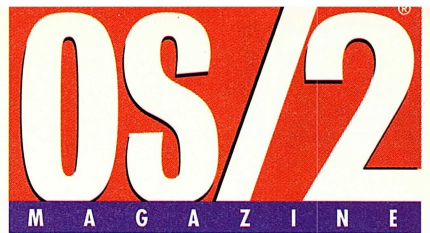
P O B O X 1 8 0 3 8 , R A L E I G H , N C 2 7 6 1 9 F A X 9 1 9 - 3 0 3 - 8 4 0 0

See us at the Software Development '96 East Show, Booth #916 and FedUNIX '96 Show, Booth #717

Reader Service No. 2

Table of Contents

Volume Three Number Eleven November 1996



Features

22 Doing Multimedia

Multimedia. OS/2 Warp 4.0 has the richest set of multimedia capabilities of any version of OS/2—rivalling that of other desktop operating systems. From support for 2,900 hardware devices to the Graphic Adapter Device Driver system, from Direct Interface Video Extensions API to the eagerly awaited OpenGL, OS/2 Warp 4.0 has it all. Let's check out those new features.

By Brian Proffit

28 The Warp Protocols

Forget NetBEUI—passé! Never mind IPX—it's the past! No, the protocol of the '90s is clearly TCP/IP, the underlying transport mechanism for internets and the Internet. OS/2 has long had a high-quality TCP/IP protocol stack; let's take a look at it and its associated tools, as found in OS/2 Warp and OS/2 Warp Server. *By Kirk Demaree and Mike Robbins*

33 Multimedia Meets REXX

The documentation that IBM ships with OS/2 is adequate for developing basic multimedia REXX programs, but there are huge gaps of missing information when you try to utilize OS/2's advanced video and audio capabilities. Let's fill in the holes in the IBM documentation.

By Linden deCarmo



38 GUI Corner

Mark Benge and Matt Smith continue their popular discussion of OS/2 Presentation Manager custom controls.

Reviews

42 Test Drives

Brian Proffit reviews IBM's AntiVirus 2.5 and SPG's ColorWorks 2.0.

54 A Telecommunications Roundup

Esther Schindler, Dennis Fowler, and Steven Vaughan-Nichols review ChipChat Communicator, HyperAccess 6.01, Livewire 3.2, Pmcomm 2.40, RhinoCom 1.5, TalkThru, TE/2 Pro, and Zap-O-Comm 2.14.

Columns

14 OS/2 Casebook

Alan Kay looks inside OS/2-centric Trantor Technologies, a virtual consulting firm based in Fort Worth, Tex.

20 Tips & Tricks

David Reich talks about autostarting LaunchPads, startup order, spaces in passwords, quitting and closing applications, handling new memory chips, and more.

51 The REXX Column

Dick Goran examines the ways that REXX has changed in OS/2 Warp 4.0.

64 End Notes

Our intrepid book reviewer, Stan Kelly-Bootle, reads 15—count 'em—tomes on a variety of OS/2-related topics.

Departments

7 Perspectives

9 Letters

11 Dateline: OS/2

18 Just Announced

Editor-in-Chief

Alan Zeichick
zeichick@acm.org

Senior Managing Editor

Theresa Mori
tmori@mfi.com

Assistant Managing Editor

Tor D. Berg
tberg@mfi.com

Editorial Assistant

Amy Wu
awu@mfi.com

Editor-at-Large

Dick Conklin
os2mag@vnet.ibm.com

Art Director

David Bergeron
dbergeron@mfi.com

Senior Contributing Editors

Brian Proffit
75300.1466@compuserve.com
Esther Schindler
esther@primenet.com

Contributing Editors

Mark Benge
banzai@raleigh.ibm.com
Dick Goran
dgoran@cfsrexx.com
Stan Kelly-Bootle
skb@crl.com
David Moskowitz
76701.100@compuserve.com
David Reich
speedracer@austin.ibm.com
Guy Scharf
guy@swarc.com
Roger Sessions
roger@fc.net
Matt Smith
msmith@prominare.com

Editorial Director

Andrew Binstock
abinstock@mfi.com

Group Publisher

Katie Brennan
kbrennan@mfi.com

National Sales Manager

Catherine McConville (415) 905-8115
cmconville@mfi.com

Assistant

Jana Outlaw (415) 356-3367
joutlaw@mfi.com

East/Midwest Sales Manager

Gary Ciocci (603) 924-9141
gciocci@mfi.com

Eastern Sales

Gordon Peery (603) 924-9141
gpeery@mfi.com

Advertising Production Coordinator

Catriona Pavich

Marketing Manager

Susan McDonald

Marketing Graphic Designer

Azriel Hayes

Group Circulation Director

Gina Oh

Associate Circulation Director

Kathy Henry

Circulation Manager

Stephanie Blake

Assistant Circulation Manager

Mark Johnson

Newsstand Coordinator

Shawn Collins

Reprints

Stella Valdez (916) 983-6971
svaldez@mfi.com

in Miller Freeman
A United News & Media publication

Chairman/CEO

Marshall W. Freeman

Executive Vice President/COO

Donald A. Pazour

Senior Vice President/CFO

Warren "Andy" Ambrose

Senior Vice Presidents

H. Ted Bahr, Darrell Denny, David Nussbaum, Galen A. Poss, Wini D. Ragus, Regina Starr Ridley

Vice President/Production

Andrew A. Mickus

Vice President/Circulation

Jerry Okabe

SVP/Software Development Group

Regina Starr Ridley



Postal and Rates

OS/2 Magazine (ISSN 1073-1547) is published monthly by Miller Freeman Inc., 600 Harrison St., San Francisco, CA 94107, (415) 905-2200. SUBSCRIPTION RATE in the U.S. is \$39.95 for 12 issues. Canadian and Mexican orders must be prepaid in U.S. funds with additional postage at \$10 per year. All other countries must be prepaid in U.S. funds with additional postage at \$20 per year for surface mail or \$40 per year for air mail. Periodicals postage paid at San Francisco, CA, and at additional mailing offices. POSTMASTER: Send address changes to OS/2 Magazine, P.O. Box 1079, Skokie, IL 60076-8079.

Customer Service

For subscription orders and changes of address, call (800) WANT-OS/2 (800-926-8672), (847) 647-5960, or fax (847) 647-5972. Or write to OS/2 Magazine, P.O. Box 1079, Skokie, IL 60076-8079, or send e-mail to 76001.2317@compuserve.com. Be sure to state the name of the magazine in your e-mail message. BACK ISSUES are \$7 each from the same address. Postage in the U.S. in free; for Canada and Mexico, add \$2 per copy, and in other countries, add \$3 per copy.

Copyright

The entire contents of OS/2 Magazine is © 1996 by Miller Freeman Inc., unless otherwise noted in specific articles. All rights reserved.

OS/2 is a registered trademark of International Business Machines Corp., and is used by Miller Freeman Inc. under license. OS/2 Magazine is independently published by Miller Freeman Inc., and IBM is not in any way responsible for the contents of this publication. Miller Freeman Inc. is an accredited member of the IBM Independent Vendor League.

Editorial Offices

Our editorial offices are located at:

OS/2 Magazine

Editorial Department
600 Harrison St.
San Francisco, CA 94107
fax (415) 905-2499
os2mag@mfi.com

CompuServe

If you're a CompuServe subscriber, please stop by our forum, where you can interact with editors, writers, industry experts, and other OS/2 Magazine readers. You can also download sample program code from the forum's data libraries. To visit, GO OS2AVEN, and browse Section 2: OS/2 Magazine.

You can send e-mail to our editors' and contributing editors' standard Internet addresses. Many can also be reached using their CompuServe accounts:

Mark Benge	73532,2063
Dick Conklin	76711,1005
Dick Goran	71154,2002
Stan Kelly-Bootle	70323,1560
David Moskowitz	76701,100
Brian Proffit	75300,1466
David Reich	76711,632
Guy Scharf	76702,557
Esther Schindler	72241,1417
Matt Smith	70363,1175
Alan Zeichick	76703,756

World Wide Web

The OS/2 Magazine World Wide Web site is currently under construction. Until it's ready, we invite you to stop by Miller Freeman's home page at <http://www.mfi.com>.

We also maintain a Web-accessible database of OS/2-related products, the Software Solutions Directory. You can jump to it from our main home page or link to it directly at <http://www.mfi.com/softwareguide>.

Editorial Policy

OS/2 Magazine is an independent publication without obligation to IBM Corp. or any hardware or software vendor, dealer, or distributor. News, features, and product reviews published without any intent of bias. Columns represent the opinions of the authors.

If you are interested in writing articles or reviews, send editorial queries to the address listed above. OS/2 Magazine does not accept unsolicited manuscripts.

Letters to the Editor

Share your thoughts, comments, compliments, complaints, corrections, and suggestions about OS/2 Magazine and the OS/2 community. Please note that we can't recommend hardware or software products, diagnose system problems, or provide over-the-phone consulting.

Write or send e-mail to us at the editorial address listed above. Letters will be considered for publication unless clearly marked "Not for Publication." We reserve the right to edit letters for space or style.

New Products

We welcome news about your new OS/2 product, whether available commercially or as shareware. Contact the editors at the earliest possible date or write to New Products Department at the above address.

Advertising Sales

For information about advertising in OS/2 Magazine, please contact Catherine McConville, National Sales Manager, at (415) 905-8115, or via e-mail at cmconville@mfi.com.

1 MultiDesk™ Personal Desktop Facility

Provides each user with their own personalized Workplace Shell™ desktop tailored to their unique and specific requirements and applications.

2 Configuration Image Facility

Save and restore complete, compressed snapshots of your OS/2® configuration – valuable for disaster recovery, training, demo machines, and more.

3 Desktop Archive Facility

Selectively backup, restore, and migrate desktop objects automatically! Desktops can even re-synchronize in real-time with object archives stored on disk, LAN, or elsewhere!

4 Workplace Shell Extensions

Take complete control of all WPS operational characteristics, including object styles, menus, ID's — even position icons with to-the-pixel accuracy.

5 Access Control Policy Facility

Manage access to desktop resources such as objects, windows, and workspaces, with all activities subject to auditing.

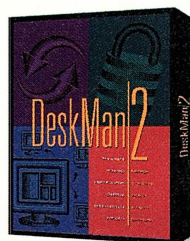
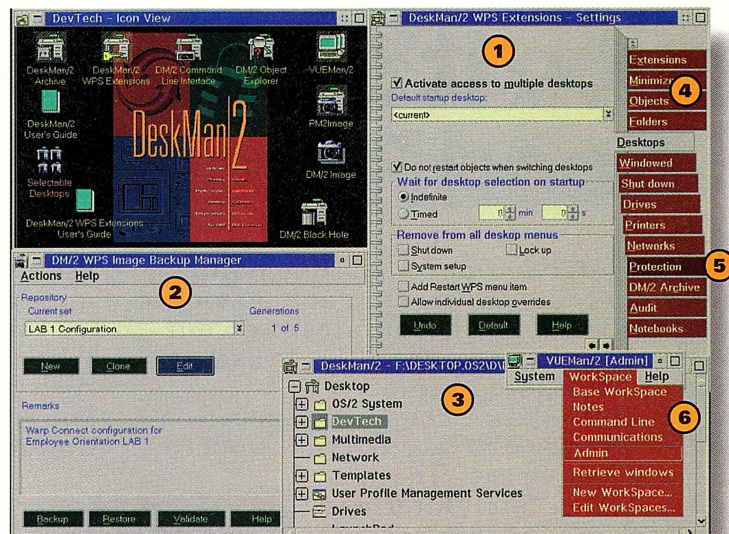
6 Workspace Facility

Define separate, named PM work areas, each with its own windows, task list, desktop, and context sensitive tools to organize your many daily activities. Check e-mail in one window, surf the Web in another, and still work on multiple projects in others!

DeskMan/2

VERSION 2.0

MAKES YOUR DESKTOP MORE FLEXIBLE, POWERFUL, & SECURE



For more information please call:
(803)790-9230

DevTech

Development Technologies, Inc.
Software Development & Technology Transfer
308 Springwood Road, Forest Acres, SC 29206-2113
Voice: (803) 790-9230 Fax: (803) 738-0218

Reader Service No. 3



Maybe It's Time to Check Into a Good Recovery Program.

Needing intervention? A malfunctioning computer can cause dysfunctional behavior. Protect your work, your computer and your sanity with Back Again/2™, the ultimate backup and recovery for OS/2 Warp.

Now upgraded to version 4.0, you get all of BA/2's 32-bit power and broad device support, plus major enhancements. The integrated Workplace Shell Interface lets you back up and restore with "drag and drop" ease. Schedule any object such as a backup set, program, or REXX script to begin at a single date and time, a timed interval, or a combination of days at a chosen time. All by simply dragging it into the new Backup Scheduler folder! Configure any external command to execute before or after a backup is performed.

Ready for
OS/2 WARP
NSTL Tested

Estimate both backup time and size, plus many more configurable options.

And, BA/2 has enhanced its robust network support. It automatically finds network resources such as LAN Server and Netware File Servers. You can also back up LAN Server ACL (Access Control Lists) automatically.

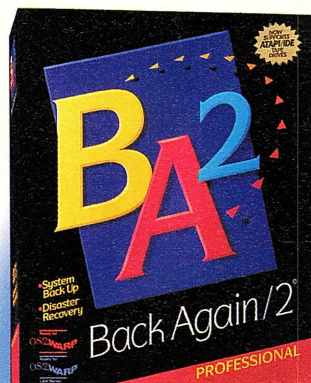
Now say this affirmation out loud, "Today I will buy BA/2 4.0, because I'm worth it." Preventive mental health begins with BA/2 4.0, the one-step recovery program.

Supports SCSI and ATAPI/IDE tape drives, networks, removable cartridges and floppy disks

System requirements: IBM OS/2.2.1 or greater

1BackAgain/2- Copyright CDS, Inc.

2OS/2 is a trademark of IBM

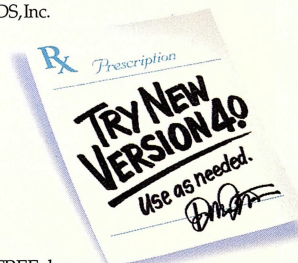


CDS
computer data strategies

It's Never too Late - With Back Again/2.

For more info call CDS at 800-284-4156 or 612-730-4156. Visit our web site at <http://www.cds-inc.com> for a FREE demo.

Reader Service No. 4



Perspectives

Exemplary Experiences

There I was, loitering in the local technical bookstore, counting the copies of *OS/2 Magazine* sitting on the newsstand rack. (I always do that.) Then it caught my eye: "Our 5th Annual Windows 95/NT Superguide." Welcome to the September 1996 issue of Ziff-Davis Publishing's *PC/Computing*.

Once I stopped chuckling, I realized that the editors of that fine magazine were merely promoting their traditional Windows tips issue; the implication that we've been slogging through Windows 95-related hype for half a decade was undoubtedly unintentional. Nevertheless, the thought persists: Have we really been watching this soap-opera for *five years*? Just about. Microsoft's highly skilled promotion of the product code-named Chicago has dominated the news for eons. And we're already seeing previews of what Windows 97, Office 97, and Internet Explorer 4.0 will look like.

What about the product code-named Merlin? As I write this editorial, it's about two weeks before the official launch of OS/2 Warp 4.0. Early reports from IBM's 65 gamma testers indicate that most of the beta's installation problems are fixed, and OS/2 Warp 4.0 is lookin' good. On the other hand, we don't know *everything*; the complete contents of the BonusPak are still a mystery, for example. (Either IBM's keeping it secret, or the marketing team hasn't decided what to include—take your pick.) I'm happy to report that IBM and Netscape have finally inked a deal to port the Navigator 2.02 Web browser to OS/2; although it won't be included on the Merlin distribution disc, this out-of-date Navigator will be free to download.

My own experience with Merlin is exemplary. Since I refuse to run a prerelease operating system on a production system (I've learned from bitter experience), the beta is on my old IBM ThinkPad 750 in a Dock II. That's right, 33MHz of untamed 486SL performance! That's nowhere near enough horsepower for VoiceType, but otherwise, Merlin is a delight. It recognized all of my devices with ease, Java-on-the-desktop is exciting, and the new operating system just *feels* smoother than OS/2 Warp 3.0, even on that near-legacy system.

I can't wait for the real thing.

At late August's Windows NT/Intranet Solutions show at San Francisco's Moscone convention center, IBM was front-and-center showing its undying commitment to... Windows NT. Gian Carlo Bisone, general manager of IBM Software Marketing, hosted a forum show-

casing more than 50 IBM solutions based on the Microsoft's corporate platform.

I don't blame Mr. Bisone: Nearly all analysts project an incredible rise in NT Server installations, with NT passing OS/2 Warp Server sometime this year and Novell's NetWare by 1999. If Windows NT is the name of the game, why not play to win? Just as IBM builds more computers based on Intel's microprocessors than its own PowerPC, Big Blue is obviously content to sell more solutions based on Microsoft's operating system than its own OS/2 Warp.

(I can't help but think that this must be unprecedented in the world of business. Could you imagine the chairman of General Motors saying, "We know that our customers want choice. So that's why we're installing quality Ford motors in all our new Cadillac models. Yes, you can special-order a Northstar V8 engine... but here at General Motors, we're engine-agnostic.")

The good news is that many IBM employees (primarily working at the Personal Software Product division) remain unwavering in their support of OS/2. At that same Windows NT-centric trade show, they were quietly promoting OS/2 Warp, distributing comparisons of OS/2 Warp Server 4.0 against Windows NT Server 4.0 and NetWare 4.1—and all the checkboxes were on the OS/2 side. New statistics showed that IBM sold more than 1.4 million licenses of OS/2 in the first half of 1996. Stealth marketing at its finest—but at least some IBMers are willing to make a stand.

So, let's all help *PC/Computing* celebrate its fifth year of offering Windows 95 tips (I love their casual use of the word "buglet" to excuse the operating system's anomalous behavior). Here's my way of crashing the party: Running OS/2 Warp.

Please join me in welcoming the newest member of the *OS/2 Magazine* family:

Alan Kay, former editor of the sadly lamented *OS/2 Professional*, and former executive editor of Ziff-Davis' *Corporate Computing*. Each month, Alan's "OS/2 Casebook" will introduce us to companies that chose OS/2 as part of their technology strategy—and have never looked back.



Alan Zeichick
Editor-in-Chief



Unite CD•Maker™

Did you know you could make your own CDs?

Check out Unite
CD•Maker on the
OS/2 Warp V4.0
Device Driver
Pack or on the
Internet. See for
yourself how easy
it is to backup your
hard drive, distribute
large amounts of data,
and even create your own
audio CDs!

CD-recordable device not required. Unite CD•Maker
is compatible with OS/2 Warp V3.0 and above.

Please call us for Windows 95
and Windows NT availability.

www.cirunite.com

Cirrus Technology, Inc. Fourth Floor, 5301 Buckeystown Pike, Frederick, Maryland 21704
email: 102404.3643@compuserve.com . telephone: 1-301-698-1900

Letters

"There's something to be said for product loyalty, namely, better products."

Stand by Your Apps

Dear Editor,

I really enjoyed your article on OS/2 e-mail apps. You bring up a lot of interesting points and make some excellent comparisons. However, you're incorrect about PM Mail's lack of address book "shadowing." While I agree that entering an address in PM Mail is not the easiest task, once entered you can "copy" an address to any number of phone books. These copies are, in fact, links; better than shadows because you can change any of the copies, or the original, and all of the references to that address are changed. Part of the problem is unclear documentation. One day, I happened to notice this feature; it may be mentioned in the documentation, but I'm not sure.

I got PM Mail when it was version 1.1. It certainly wasn't as robust as 1.5, but it was a good program. I'm very glad I stuck with 1.1 until 1.5 came out; many people on the Net were jumping ship to some of the other apps that you mentioned. I believe there's something to be said for product loyalty, namely, better products.

Michael Lax

HPFSRem

Dear Editor,

In his August "Perspectives," Alan Zeichick talks about using a Zip drive. One thing he uses it for is as a removable hard drive. Those of us who use HPFS on our regular hard drives would probably want to use it on removable drives.

I ran into this problem with my SyQuest EZ135 drive, so I wrote HPFSRem, which lets me remove HPFS vol-

umes from my removable drive without rebooting and without a system crash. I have no doubt other people are interested, so I wrote it not to be specific to a particular drive. It works on EZ135s and Zips, and I'm working with some folks to make it work on a Jaz drive, too.

It can be found at <ftp://hobbes.nmsu.edu/os2/diskutil/HPFSRem.zip>.

Jeff Jackowski

It's Alive!

Dear Editor,

In the "Network Meets Internet" article of the August 1996 issue, Steven Vaughan-Nichols says, "In practice, ADSL is still wet behind the ears and barely out of the laboratory's door." Actually, Aware Inc., located in Bedford, Mass., already sells an ADSL Internet Access Transceiver that delivers data rates of 4.4Mbps over standard telephone lines. A Web site for this product can be found at http://www.aware.com/product_info/adsl/internet_access.html.

J. Bielski

OS/2 Boot Manager

Dear Editor,

Thanks for the Boot Manager article ("Giving Operating Systems the Boot," September 1996, pp. 26-29). Here's my favorite scenario. Other readers may find this information useful.

As a software developer, I need to use several operating systems. I prefer to have two hard drives. The first is used solely for operating system (OS) partitions, in particular operating systems that use driver lettering (for example, C:). The second is used for applications and data, and possibly additional operating systems.

I create four physical partitions on the first drive. One for Boot Manager and three for DOS/Win3.1/Win95, OS/2, and WinNT. Each OS partition uses its native file system. Since I use physical partitions, whichever partition I choose at boot will be C:, and the others will be hidden, ensuring that the first partition on the second drive will be D:. Formatting this partition for the DOS FAT file system will make it universally accessible. Since the driver letter is consistently D:, I can install applications without worrying about driver letters being mapped differently as I boot different operating systems. Such remapping can confuse some apps. Some apps update the OS partition, so it may be necessary to install an app to D: from each operating system that is to be used.

A second partition on the second drive can be created and HPFS formatted for OS/2 apps. The third partition is formatted NTFS for WinNT apps. On the fourth partition, I like to install the LINUX operating system. I also like to create a /dos directory under LINUX and mount the first partition (the common DOS FAT partition) there. (See table.)

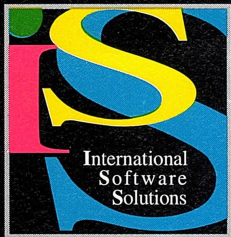
I like having the operating systems isolated and hidden from each other, using native file systems, having consistent drive letter mapping, and having the one common partition available from all five operating systems. Excluding LINUX in the above scenario, it's also nice to have the operating systems and the apps/data on separate drives. Redoing the partitions on the first drive as your operating system needs change doesn't jeopardize your data.

Tony Tribelli

Errata

On page 18 of *OS/2 Magazine's 1996 Buyers Guide*, under the listing for FaxForward, the phone number for Computer Systems Integration Inc. should be (401) 435-5090. The fax number should also be (401) 435-5090.

	Drive 1	Drive 2
Partition 1	Boot Manager	Common apps/data (FAT)
Partition 2	DOS/Win3.1/Win95 operating systems (FAT)	OS/2 apps/data (HPFS)
Partition 3	OS/2 operating system (HPFS)	WinNT apps/data (NTFS)
Partition 4	WinNT operating system (NTFS)	LINUX OS/apps/data (ext2)



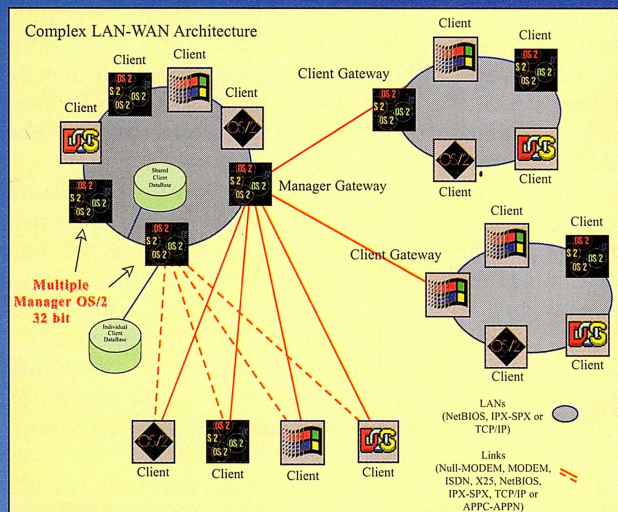
Remote Services Management™

PolyPM/2 Version 3.1

The Ultimate Cross Platform Remote Control and Network Management Solution

Major consulting groups estimate that the purchase price of a workstation represents only 15 percent of its lifetime cost, while maintenance is estimated at more than 60 percent. This includes the increasing expense of end user Help Desk Support, Electronic Distribution Systems and Automated Data Collection.

These figures have been confirmed by more than 350,000 users worldwide who have found that R.S.M. pays for itself over and over in a variety of ways across a broad range of local and wide area networks and workstation platforms.



Some Typical Applications

- ♦ **Help Desk** - it's just like being there when helping End Users across a phone line, LAN, private or public X25 Network, WAN or SNA Backbone
- ♦ **Server Support** - connect from your computer, on the road, at home, or in the office, to troubleshoot, tune and manage Network Servers (i.e. Lotus Notes, Application, Communications, etc.)
- ♦ **Telecommuting** - transfer files between home and office computer or use office computer from home to access applications, databases, host communications, etc.
- ♦ **Network Management** - with the *Programming Script Language*, you can automate Network Management functions including EDS (Electronic Distribution Systems) and ADC (Automated Data Collection)
- ♦ **Remote Application Support** - if you are a Vendor or Application Developer, use Remote Services Management to troubleshoot and correct problems on remote workstations located on customer premises

For further information, contact your nearest software distributor or one of the following I.S.S. locations:

USA	International Software Solutions USA	Phone: (888) ISS2YOU	FAX: (407) 820-0804
United Kingdom	International Software Solutions UK	Phone: (44) 1256 8170 00	FAX: (44) 1256 8422 44
Germany	International Software Solutions GMBH	Phone: (49) 6221 7850 95	FAX: (49) 6221 7850 97
France	International Software Solutions France Diffusion	Phone: (33) 76 52 42 22	FAX: (33) 76 52 42 20

To obtain a demonstration version, visit our Home Page at <http://www.iss2you.com> or type GO ISSLP on CompuServe.

Remote Services Management and PolyPM/2 are Trademarks of International Software Solutions L.P.

LITE EDITION \$199

ADVANCED EDITION \$349

PROFESSIONAL \$499

OS/2 Professional October 1995
 "...To sum up, RSM is a powerhouse among remote control programs. It is probably the most full-featured product of its type regardless of whether we're discussing DOS/Windows or OS/2. And the three versions allow you to purchase the power and capabilities you need. Especially if you're a LAN administrator or need to support multiple PC's remotely, RSM is your best solution." (Merrill R. Chapman).
Australian Personal Computer March 96
 "IN SHORT: RSM was the only product to offer connectivity between OS/2 and Windows machines. Together with its excellent feature set, this makes it an outstanding product" (Nathan Taylor).

What Is R.S.M.?

Remote Services Management allows an OS/2 *Manager* Workstation access and take functional and full graphical control of an OS/2, DOS, Windows 3.x, or Windows 95 *Client* Workstation across a Phone Line, LAN or WAN.

A Rich Set Of Features

- ♦ **Multiple Platforms** - OS/2, DOS, Windows 3.x and Windows 95
- ♦ **Popular Protocols** - Null Modem, Asynchronous Modem, NetBIOS, TCP/IP, IPX-SPX, Native X.25, CAPI ISDN and APPC-APPN
- ♦ **Hierarchical Database & Gateway Support** - all network users on a LAN or WAN can be easily defined and accessed
- ♦ **Graphical Remote Control** - regardless of screen color or resolution
- ♦ **File Transfer** - files or entire directory structures can be transferred with secured data encryption, background processing, and automatic restart
- ♦ **Multimedia Chat Mode** - text and voice
- ♦ **Exclusive Marker Mode** - draw and comment directly on the Client desktop
- ♦ **Remote Reboot** - allows you to change configurations and drivers remotely
- ♦ **Extensive Security** - multiple levels including: ID, Passwords, Client Notification, Call Back, File & Application Protection, Limit Access Days, Encrypted Data Stream, etc.
- ♦ **Audit Trails** - audit trail connections (who, when) and files transferred
- ♦ **Programming Script Language** - create sophisticated applications for EDS (Electronic Distribution Systems) or ADC (Automated Data Collection)

Ahead of the Curve

BY TOR D. BERG



It's obvious that IBM is throwing its full weight behind Java development. Java is embedded in OS/2 Warp 4.0 in the form of the Java Virtual Machine and Sun's Java class libraries.

And Big Blue has founded the San Francisco Project, an initiative including over 50 independent software providers intended to provide a series of high-level application frameworks—for everything from general ledger to inventory control—all based on Java.

IBM even intends to add support for non-IBM object request brokers to OS/2, all in the pursuit of a better Java platform. OS/2 users may actually find themselves ahead of the curve in regards to this technology, thanks to some forward thinking on IBM's part.

Welcome to the Web

IBM and Netscape have signed a deal that will bring Netscape Navigator 2.02i to your OS/2 Warp desktop. Finally. OS/2 is the seventeenth computing platform to support a version of Navigator, arguably the premier browser software available today. The beta version of Navigator for OS/2 should be available by the time you read this column, and the final version will be available online around the end of October.

Combining Navigator and some of the really neat features included in Merlin will drop some very hot new technology in your lap. The browser is tightly integrated with the Workplace Shell; you can drag and drop Java apps to your desktop. Merlin's built-in VoiceType feature enables OS/2 users to surf the Web with voice commands alone. With a Pentium machine, an

industry-standard sound card, and an Internet connection, you'll be able to "Jump to Norloff BBS" with Merlin right out of the box. When you install this version of OS/2, you'll find a Netscape logo on your desktop. Clicking on it will automatically download Navigator 2.02i for OS/2. For free.

Plug-in support is a little mysterious right now. Wally Casey, vice president of client product management for IBM Personal Software Products, expects that some of the more popular plug-ins—Macromedia's Shockwave, Adobe's Acrobat Reader, and Apple's QuickTime—should have OS/2 versions before too long. And a software developers' kit is expected to be released concurrently with the browser, so independent plug-in authors can immediately go wild.

For those without the interest in or resources to purchase the OS/2 Warp 4.0 upgrade, the new browser is supported by version 3.0 and can be downloaded free of charge, albeit without the cool autodownload button and without the Java support. An update kit for the Java run time is available for 3.0 users, but you'll have to pay for it.

Now for the caveats. IBM's WebExplorer has some dedicated fans. For WebExplorer fans, IBM has promised to maintain and support the current version. However, in the words of Mr. Casey, "Navigator is the strategic browser for OS/2." IBM will make migration tools available, so you won't have to rebuild your Quicklists manually. You should really consider making the jump.

Furthermore, "too little too late" would be an overstatement, but where

have these guys been? Apparently, the joint IBM/Netscape development team went to work last Spring. IBM should be commended for its efforts to keep its products technologically current, but last season's browser? Please, gentlemen. At least, Navigator for OS/2 will sync up versions with the other platforms when Netscape releases Galileo sometime in first quarter 1997.

All things considered, however, this is a huge leap forward for OS/2. In making the announcement, Mr. Casey lamented that "on the track to make OS/2 the client platform of choice, the missing component has been a world-class browser." This agreement fills that particular need. The next few months will see some very interesting applications of OS/2. Serious Java support, Netscape Navigator for OS/2 (sounds nice, huh?), and a concerted effort by IBM to build a single-minded development community focused on open, cross-platform computing illustrate Big Blue's willingness to claim new high-tech territory for OS/2 Warp users.

And another thing...

Oracle gave us a call just as we were putting this issue to bed. Developer 2000, Oracle's client/server database development toolkit, has been ported to OS/2.

According to Steve Ehrlich, director of tools product marketing at Oracle, IBM pushed heavily for this release. Oracle agreed that the time was ripe. Oracle's competitors had been promising OS/2 support for years with no delivery. And the market potential was very attractive to the database giant.

"We cater primarily to Fortune 1000 companies," says Mr. Ehrlich. "Those companies mostly run Windows, but they do have OS/2 machines filtered throughout the enterprise. Obviously, there's a need to support them." There's that. There's also the fact that 8% of the client machines worldwide run OS/2, translating to about 200 million desktops. Finally, Developer 2000 has already shipped versions for Windows 3.1/95/NT, PowerMac, and several varieties of UNIX. A truly ubiquitous development package naturally needs an OS/2 port.

And ubiquitous could be the word. Developer 2000 is made for cross-platform development, supporting the native look and feel of all supported platforms. Developers can create templates for varying platform implementations on a single machine, so the Developer 2000 for OS/2 can build database clients for MacOS, Windows 3.1/95/NT, and UNIX.

Check out next month's "Just Announced" for more about Developer 2000 for OS/2.

OS/2

OS/2 APPLICATIONS TOP 15 LIST—AUGUST 1996

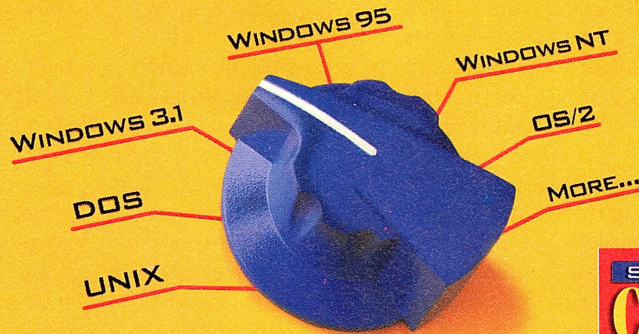
This Month's Rank	Last Month's Rank	Product	Company
1	-	IBM AntiVirus Desktop 2.5	IBM
2	2	Partition Magic 2 Personal Ed.	PowerQuest
3	5	BackMaster 2.0	MSR Development
4	8	System Commander 2.2	V Communications
5	3	FAXWorks Pro 2.0 Upgrade	Global Village
6	6	UniMaint 4.0	SofTouch Systems
7	9	BackAgain/2 4.0 Prof. Ed.	Computer Data Strategies
8	-	Seagate Backup 2 Personal Ed.	Seagate
9	-	Impos2 2.0 Upgrade	Compart
10	-	Object Desktop Professional	Stardock Systems
11	1	Hobbes CDROM Archive	Walnut Creek
12	10	GammaTech Utilities	SofTouch Systems
13	-	Sytos Premium 2.1	Arcada
14	-	DeScribe Voyager CD	DeScribe
15 (tie)	-	ColorWorks 2.0	SPG
15 (tie)	13	QuickMotion 1.1	Practice Corp.

Since OS/2 Warp and OS/2 Warp Connect are consistently ranked as top-selling products, and sales of additional licenses can sometimes skew results, this list has been modified to highlight only the top-selling OS/2 applications. (Best-seller information courtesy of Indelible Blue.)

Windows NT • Solaris • Linux • Windows 95 • OS/2 • PC-DOS • SCO UNIX

QNX • NetWare • Next Step • Windows 95 • UnixWare • XENIX • Coherent Unix • Lynx OS • Warp • Free BSD

Run more than one OS on your PC!



SYSTEM COMMANDER

System Commander makes it safe and easy to add as many OSes to your PC as you want!

Easy Automatic Installation

- Prepares your PC for new OSes in minutes
- Simply select the OS you want and System Commander does the rest
- To use another OS simply reboot and make another selection

Money-Saving Flexibility

- Minimize hardware expenses by putting up to 100 OSes on one PC
- Use any combination of hard drives

- Use any Intel compatible OS or combination of OSes, in English or any other language

System Commander is only \$99.95 and comes with an unconditional 60 day money back guarantee. Get Free overnight shipping when you mention this ad. *Order it now and have it on your desk tomorrow morning!

"System Commander is a blooming miracle"
Jerry Pournelle- BYTE

Free overnight shipping*
when you mention this ad.

800-648-8266
www.v-com.com

V Communications, Inc.
4320 Stevens Creek Blvd, #120-30S
San Jose, CA 95129
408.296.4224 fax 408.296.4441

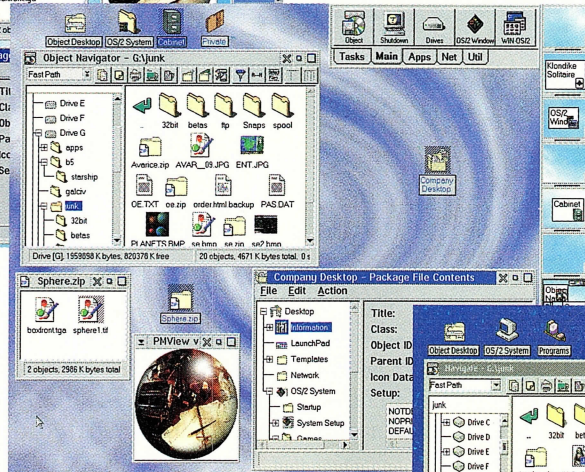
* When ordered before noon PST. No Saturday delivery. Standard shipping outside US. CA res. add \$7.25 sales tax. Offer subject to change without notice. All logos and product names are trademarks of their respective companies. VISA/MC/Amex ©1996

Windows v3.x • DOS/V • Windows 95J • Warp • MS-DOS • Linux • Merlin

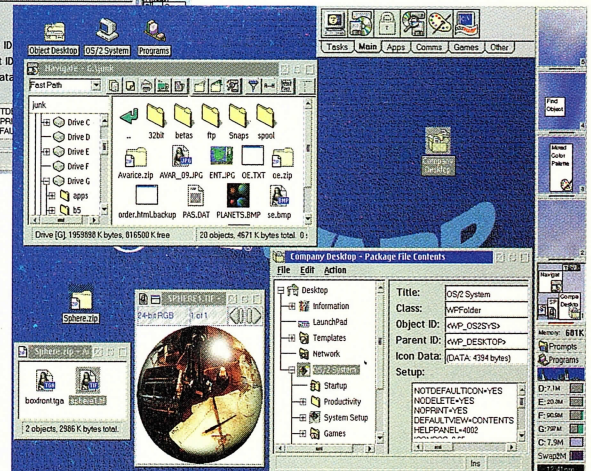
Take OS/2 To A New Level...



Object Desktop on OS/2 2.11



Object Desktop on OS/2 Warp 3.0



Object Desktop on OS/2 Warp 4.0 ("Merlin")

with Object Desktop 1.5

The Next Generation Desktop Environment

Whether you're running OS/2 2.11, OS/2 Warp, or OS/2 "Merlin", Object Desktop takes OS/2 to a new level of power, ease of use, and performance.

That's because Object Desktop leverages the power of IBM's SOM technology -- it inherits all the features of OS/2 and then seamlessly adds new features to the base OS, making Object Desktop a compelling way to enhance your OS/2 system -- no matter which version of OS/2 you are using.

Much wanted features such as the ability to view/edit/run files in a .ZIP file, standardizing and distributing a desktop, virtual desktops, launching programs with a keyboard combination, and hundreds of other features not found in OS/2 itself are in Object Desktop and become part of OS/2 once Object Desktop is installed.

Make sure you're getting the most out of OS/2. Get Object Desktop and take OS/2 to a whole new level....

"Object Desktop brings the OS/2 desktop up to its potential and, in doing so, brings it up to date. And it does it so well, I predict it will be an instant hit and best-seller for OS/2 for a long time. No one who sees it will want to do without it."

-InfoWorld.

"Object Desktop makes OS/2 look and feel like a new version."

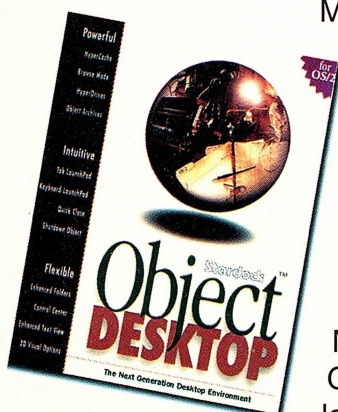
-PC Magazine

"With the fine reputation Stardock has developed for OS/2 applications, I don't hesitate to recommend Object Desktop fully."

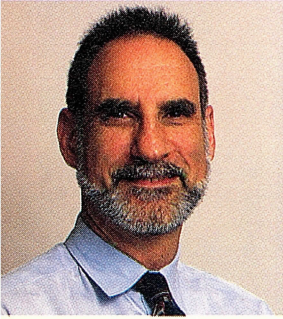
-OS/2 Magazine

"Object Desktop complements OS/2 so well that your immediate response is bound to be, 'That's the way a computer is supposed to work.' If you use OS/2, get Object Desktop. It's simply splendid."

-Computer Shopper



Stardock Systems, Inc.
Tel: 313-453-0328
Fax: 313-453-1480
www.stardock.com



The OS/2 Biz: Turning a Page

BY ALAN S. KAY

If OS/2 has no future and precious little present, please don't tell Ken Rucker. He thinks he's making a good living building systems around it.

In fact, Mr. Rucker is so out of touch, he'll actually tell you that demand is increasing. "Frankly, I've been surprised how receptive the world is, particularly in view of the momentum behind the alternative and the lack of momentum coming out of Armonk. But I'm equally as surprised at how receptive business customers are when they learn that there is an alternative and when they see that alternative."

Twinkle in his eye

Mr. Rucker's Trantor Technologies was just a twinkle in his eye until the beginning of 1996, when he left his job as a senior consultant at AMR Corp., parent company of American Airlines. He'd been doing system architecture work, including the design of a distributed OS/2 environment at AMR. Based on the read he was getting of the need for OS/2 integrators, he took the plunge.

Fort Worth, Tex.-based Trantor isn't a threat to EDS at the moment. It currently consists of four full-time staff members, and an extended family. Call it a virtual consultancy, Mr. Rucker says. "We have avoided growing our staff purposely. We wait until the very last minute before adding to our permanent staff, in favor of utilizing some of our strategic business partners and other small and large consultancies and integrators. We feel that gives us maximum flexibility in addressing customer needs be-

cause it makes it easy for us to apply appropriate expertise to a problem at a site rather than trying to make the problem fit what expertise we have available."

OK, but why OS/2? Other companies in—Washington state, say, and in Utah—also offer networked operating environments and product suites and can supply any model an integrator might need to develop a vertical IT application.

You can hear the smile in Mr. Rucker's voice as he answers, as though he were just waiting for a big, fat question like this one to float over the plate: "OS/2, OS/2 Warp, OS/2 Warp Server, all those database servers—these tools allow us to craft a custom solution with very little custom development. The communication capability of OS/2 Warp and OS/2 Warp Server, and by extension all the software servers, is absolutely awesome. Talk as they might about open standards and systems, I've seen no other OS or NOS alternative on the planet that gives us the flexibility that this OS/2 Warp family does."

He also likes OS/2's robustness when it comes to moving data between Intel platforms and host-based systems, as well as the stability of its APIs across platforms. "You don't have to go back in and change the source code with every .1 or .0 release."

Trantor is focusing on developing networking, internetworking, and systems management solutions. Systems management in particular, says Mr. Rucker, is the linchpin in today's—and, more importantly,

tomorrow's—enterprise computing platforms. He's currently working on a half-dozen projects, all for mid-sized businesses with between 150 and 300 employees. Each has multiple servers, multiple offices, and a need for wide area connectivity. Some use the AS/400; others are System/370 shops.

Lessening load time

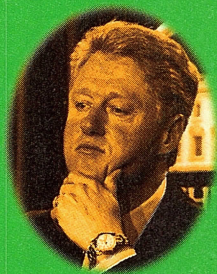
Take, for example, the system that Trantor designed for PageMart Nationwide, the fifth largest provider of paging systems in the United States. PageMart's National Communications Center in Dallas manages the company's satellite-based 900MHz pager operations, which involve some 400 communications links and about 4,000 linkage and transmitting devices, delivering data signals to more than 1.7 customers nationwide.

From Dallas, the entire paging network is centrally monitored and managed in real time. It relies on an enterprise management system, MAX/Enterprise from McLean, Va.-based Maxm Systems Corp., that routes SNMP alerts to the operations center consoles through an RS/6000; the alerts ultimately are delivered to OS/2-based operator consoles. The consoles draw data on every device on the network from a DB2 database and can remotely access any of them when a problem occurs.

With all those devices, just starting up the system was a nontrivial event. When a new operator came on—what with loading the map, logging onto the systems, and loading the individual copies of the data-

We thought about
getting President
Clinton to speak at
our D.C. conference.

But we figured
you'd rather hear
Tim Berners-Lee.



Register for Software Development '96 East
October 28–November 1, Washington, D.C.

As the inventor of the World Wide Web, Tim is considerably more qualified to provide you with insights into web development. As are the 30 other web authorities teaching at SD '96 East.

With 200 classes and 175 tools vendors, SD '96 East is the largest development event on the East Coast. You'll learn concrete skills from expert instructors including Bruce Eckel, Mark Pesce

and Richard Hale Shaw. Trade intelligence with the industry's smartest development professionals. And preview the latest tools for intranet development, object-oriented programming, client/server migration and rapid application development.

To get your SD '96 East conference catalog, call us at 800.441.8826 or 415.905.2702. Or send us e-mail at sd96east@mfi.com.

We'll provide you with an exceptional opportunity to meet face-to-face with some of the most influential leaders in Washington, D.C.



More tools. More intelligence.

<http://www.sd96.com>

base—it would take 24 and 28 minutes before any problems on the system could be handled.

Having outgrown its facility, PageMart completed construction of a new operations center this past summer. In outfitting the new center, Trantor helped migrate PageMart to Warp Connect and the IBM Database Server. "We also cleaned up the network transports," reports Mr. Rucker, "and put the database server on an OS/2-based database server machine. The first test run, which left DB2 1.1 clients on the operations consoles, reduced the load time for the system to about 14 minutes.

"Next we upgraded the operations center consoles to Database Server clients, so that the consoles would hit a distributed database server instead of having to maintain a local database. The load times dropped down to less than five minutes. Then, with the customer, we identified a programmer familiar with PageMart's vertical software package. We

did some analysis of the run-time environment, and the customer had the programmer tweak the software a bit. Now the load time is below five seconds."

What's next? Migrating the server from OS/2 Warp Connect to OS/2 Warp Server, installing Hewlett-Packard's JetDirect print servers to access remote HP printers, and adding local system management capability via TME10—the Tivoli Systems Inc. software package that integrates the Tivoli Management Environment and IBM's SystemView.

Mr. Rucker notes that it's a challenge these days to respond to enterprise clients who come to Trantor looking for ways to cut IT costs. "I tell them there's not much we can do about the cost of hardware or software. What we try to attack is the cost of integration, the cost of ongoing maintenance, administration, and end-user training. We've been very successful at driving those costs down to a smaller wedge of the pie."

How? Again, a smile in the voice: "OS/2 is really the key. When clients see how quickly and cost-effectively they can get a system up that they've been struggling with for months, they're really shocked, and really happy.

"It gives you that warm feeling; you just get the glow that comes from within when you can go in there and see the reaction of these customers when everything finally works together. That alone almost makes it worthwhile—that, and making a buck on it. But even if I didn't, I'd probably keep doing it anyway. It really is fun to set up."

OS/2

Alan S. Kay reports on business technology from Washington, D.C. and San Francisco, Calif. Let him know about interesting IS and integrator uses of OS/2 at ask@well.com.

MISSION: POSSIBLE

Good morning Mr. Phelps,
Our mission is to provide our corporate customers with the finest software development and consulting services available.

On this mission we will:

- Enhance your ability to meet product development schedules.
- Resolve defects preventing the rollout of your mission critical applications.
- Increase your ability to manage and assess development resources and schedules.
- Design, develop, and debug application code based on your product requirements.

Enlist our team of former IBM OS/2 development experts specializing in GUI programming environments including OS/2 Presentation Manager, Windows NT & Windows 95, by calling today!

Stern & Morrow Software Consulting

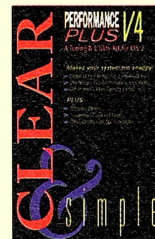
350 West Camino Gardens Blvd., Suite 102

Boca Raton, FL 33432

561-392-0104, (fax) 561-392-7671

<http://www.icanect.net/~smorrow>

NEW from Clear & Simple



Performance PLUS V4

A Tuning & Utility Kit for OS/2

- ▶ Get snappy performance without expensive hardware upgrades.
- ▶ Easy and accurate Config.sys optimizer.
- ▶ Simple Dos/Windows application tuning.
- ▶ Create an OS/2 boot diskette or partition.
- ▶ Automatic desktop archive every (1-99) days
- ▶ 130 page book - teaches as you tune!

OS/2 Magazine 1995 Editor Choice Award! (V3)



The DiskJockey

Multithreaded File Manager & Navigator

Guaranteed time saver

money back if you're not completely satisfied!

- ▶ Easiest to learn and use with fast & powerful...
- ▶ copy/move/delete/view/edit/search/zip/unzip
- ▶ Built-in JukeBox cues and plays sound files.
- ▶ Easiest Zip/Unzip - views files within zipped files without unzipping - extract single files.
- ▶ Instant file viewing text & bitmaps.
- ▶ Multithreads - keeps you working instead of waiting.

Unbelievably low prices for multiple licenses (call).

Only \$39.95 each

Clear & simple, Inc.
P.O. Box 130 W. Simsbury, CT 06092
Tel (860) 658-1204 Fax (860) 651-0354
www.clear-simple.com



“Reply. Show me how to enjoy desktop computing without the desktop. Send.”

Please complete and return this postage-paid card, or call 1 800 347-5449, or visit our Web site at www.software.ibm.com/info/w434.

NAME		TITLE	
COMPANY NAME			
ADDRESS			
CITY		STATE	ZIP
PHONE		FAX	
E-MAIL ADDRESS			

So we can meet your needs as accurately as possible, please complete the questions below:

1. Please tell us if you are a: ☐ Reseller ☐ Consultant
☐ Developer ☐ Business Buyer ☐ Home Buyer
2. If you are interested in OS/2® Warp4 for business use, what is your role in the decision process for software and systems?
☐ Evaluate ☐ Recommend ☐ Make Decision ☐ None
3. How many people are there on your network(s)?
☐ 2-25 ☐ 26-50 ☐ 51-100 ☐ 101+
4. Is your organization currently planning to upgrade or change your desktop operating system?
☐ Yes, immediate need ☐ Yes, within 3 months
☐ Yes, within 6 months ☐ Yes, after 6 months
☐ No

Solutions for a small planet™



IBM reserves the right to modify or withdraw this promotion at any time. IBM and OS/2 are registered trademarks and Solutions for a small planet is a trademark of International Business Machines Corporation. ©1996 IBM Corp. All rights reserved.

OS2BRC



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL

PERMIT NO. 643

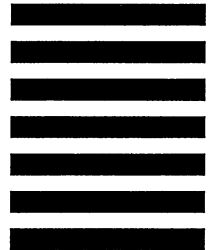
BUFFALO, NY

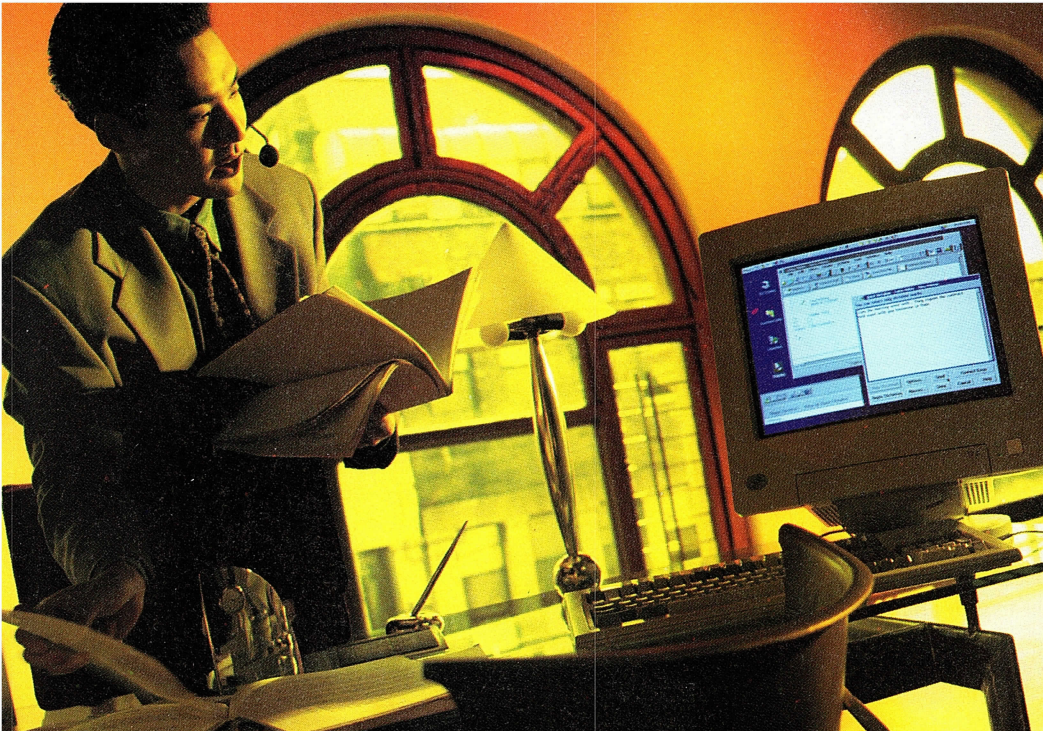
POSTAGE WILL BE PAID BY ADDRESSEE

IBM OS/2 WARP 4

PO BOX 447

BUFFALO, NY 14207-9896





"Open mail.
Tom, the
contract arrived.
I need your
input. Bill.
Send."

INTRODUCING DESKTOP COMPUTING WITHOUT THE DESKTOP



Isn't the most natural interface of all your voice? So how come you're still chained to a keyboard? Why don't you just talk to your computer while you get on with the zillion other things that need your attention? Sound impossible? Not anymore, because we've incorporated IBM VoiceType speech recognition technology into the best desktop operating system solution money can buy: OS/2® Warp 4. Which means you can have hands-free e-mail, voice Internet navigation, even dictation into most all your applications. All at the sound of your voice. So now you'll be able to get on with your work while you get out from behind your desk.

With a great new graphic interface, OS/2 Warp 4 is the ultimate network computing solution that lets you connect to almost anything, from just about anywhere. All it takes is a couple of mouse clicks and you're into your drives, printers, networks, servers and Web pages. It even comes with Java™ runtime so you can run Java applets from your desktop without a browser. And now you can also download a native OS/2 Warp 4 version of Netscape Navigator™ from our website at no additional charge.* All in all, whether you're in the office or on the road, there's no better universal client. Wherever you happen to be in the universe.

Solutions for a small planet™



GET

a free interactive demo CD that allows you to experience the benefits of "hands-free computing" by visiting our website at www.software.ibm.com/info/w416, or call 1 800 357-8864.

*Beta version. IBM reserves the right to modify or withdraw this promotion at any time. IBM and OS/2 are registered trademarks and VoiceType and Solutions for a small planet are trademarks of International Business Machines Corporation. Netscape Navigator is a trademark of Netscape Communications Corporation. Java is a trademark of Sun Microsystems, Inc. © 1996 IBM Corp. All rights reserved.

Just Announced

CFSPoker

Video poker program

CFS Nevada Inc. has released a new commercial OS/2 video poker game. CFSPoker replicates most of the functions of actual gaming machines, with a unique method of distribution.

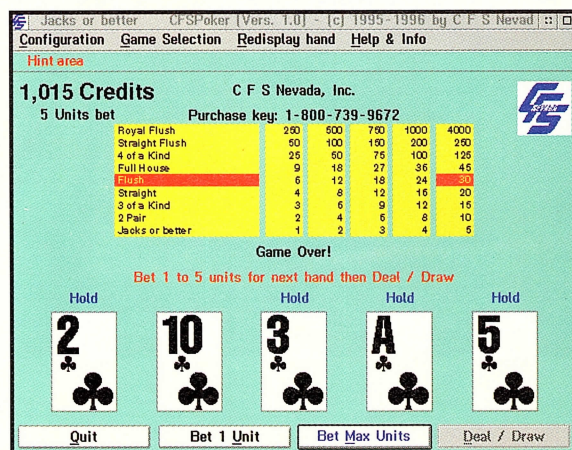
The program is distributed free of charge with 1,000 game credits and runs with no restrictions so long as the player is able to maintain a positive credit balance. If the player depletes his credits to zero, the game must be registered to be re-enabled.

CFSPoker can be configured by the player. Players can select Jacks or Better, Joker Poker, and Deuces Wild (including variations), or they can customize their own games. Features include context-sensitive Help, full audio, customized card backs, and statistical data display. CFSPoker can also be played using voice commands on OS/2 Warp 4.0.

CFSPoker is available for free download from <http://www.cfsrexx.com> or via anonymous FTP from <ftp.cfsrexx.com/pub/CFSPoker.zip> (case-specific). CFSPoker is also distributed on the IBM OS/2 Family Sampler CD-ROM that will accompany the release of OS/2 Warp 4.0.

CFS Nevada Inc., (800) 864-2358, Outside U.S. (702) 732-9616, fax (702) 732-3847, e-mail dgoran@cfsrexx.com or 71154.2002@compuserve, or see its Web site at <http://www.cfsrexx.com>.

READER SERVICE NO. 102



Visual SlickEdit 2.0

Beautify your code

MicroEdge Inc. announces the release of a new version of its programmer's editor, Visual SlickEdit.

New features include API Appren-tice (supports OS/2, Win32, MFC, and C run times), a C/C++/Java code beautifier, difference editing, selective display (code folding), code block sections, and hex editing. For those programming on the Internet, Visual SlickEdit 2.0 offers support for viewing HTML nfiles for Netscape, Internet Explorer, Mosaic, and WebExplorer. These new features complement existing features such as Smart Paste (which automatically re-indents pasted and dropped source code according to its nesting level), procedure tagging, syntax expansion, and syntax editing.

Visual SlickEdit 2.0 for OS/2 sells for \$295.

MicroEdge Inc., (919) 831-0600, fax

(919) 831-0101, e-mail sales@slickedit.com, or see its Web site at <http://www.slickedit.com>.

READER SERVICE NO. 103

MPEG Player 2.0

Movies with OS/2

InterStream Inc. has released version 2.0 of its MPEG Player for OS/2.

The InterStream MPEG Player plays MPEG-1 video streams. It features a drag-and-drop interface with both PM and full-screen playback. A toolbar eases the use of controls such as Play, Single-Frame Advance, and Fast Play. A status bar shows frame rate, image size, and error information.

Viewing options include playback of selected ranges of the stream, a fully resizable playback window, and playback at a specified rate. Grayscale and color playback are supported. Custom blitters for performance and better colors are included.

Two versions of the MPEG Player 2.0 for OS/2 are available: the Standard Edition (\$49.95) and the Electronic Edition without hardcopy manual (\$44.95). For a limited time, the Standard Edition is available from J3 Computer Technologies for \$39.

InterStream Inc., (512) 434-3477 ext. 6100, fax (512) 434-3477, e-mail sales@i-stream.com, or see its Web site at <http://www.i-stream.com/products.html>.

J3 Computer Technologies, (800) 787-0930, outside U.S. (909) 985-6786, fax (909) 981-5423, e-mail sales@os2store.com, or see its Web site at <http://www.os2store.com>.

READER SERVICE NO. 104

Soup KIDchen 1.1

Now I know my ABCs

Soup KIDchen is a software package that helps children two to five years old learn the alphabet, numbers,

colors, and shapes by association with images and sounds.

Soup KIDchen 1.1 comes with a database of images and sounds that can be installed and used immediately. The parent or caregiver can also configure which text, images, and sounds are presented. Parents drag and drop pictures and sounds in a notebook interface to configure the database. The database can include images and sound recordings of relatives, pets, and so on. Settings such as .wav file volume and background music selection are also configured in the notebook.

Soup KIDchen 1.1 requires OS/2 Warp 3.0 or later, 8MB RAM, 7MB hard disk space, and a CD-ROM drive (for installation and to use the default database). The program costs \$44.

Widdow Works, (814) 867-2469, fax (814) 867-2469, or e-mail widdow@third-wave.com.

READER SERVICE NO. 105

MR/2 ICE 1.1

Internet e-mail client for PM

Nick Knight has released an upgrade for his shareware e-mail client MR/2 ICE. It is a multithreaded, multiwindowed 32-bit PM application that supports 47 code pages and honors OS/2 Country settings. The unregistered version is fully functional with no funny signatures added.

Many features have been added since version 1.0 was reviewed in September 1996 ("The Net's in the Mail," p. 61). MR/2 ICE now includes MIME support for both incoming and outgoing attachments. Files can be dropped on the message editor to add them as an attachment. Support for ISO-8859-10 and KOI8-R Russian character sets has been added. MR/2 ICE can now be made PGP-capable with the help of some third-party tools, including a PM-based PGP front end and/or several REXX scripts. REXX interfaces

have been improved for both "on demand" and filter interaction. Users can have the REXX session loaded in the background, or in the foreground, allowing user interaction. Mr. Knight has also added PreSend filters that allow modification to any message just before it is sent. In addition, any external modifications to a message updates the message index.

MR/2 ICE "server" options have been added that allow MR/2 to be controlled from other programs. For example, you can use MR/2 ICE as your SMTP interface for SLNR, add message files to MR/2 ICE's outbox from any application, or invoke a "new message" from any application. MR/2 ICE is the default external mailer for the new Black Book 1.0.

The shareware registration fee for MR/2 ICE 1.1 is \$25. It can be downloaded from Nick Knight's Web site or from the Norloff OS/2 Shareware BBS (<http://www.os2bbs.com>).

Nick Knight, e-mail nick@secant.com or see his Web site at <http://nick.secant.com>.

READER SERVICE NO. 106

FairCom Servers

Heterogenous network support for Web apps

FairCom Corp. has released its Database Servers and c-tree Plus File Handler for use as a Web backend. These servers offer heterogenous network support for OS/2, Windows NT, Macintosh, and more than 20 UNIX environments.

This network support offers a solution to developers faced with integrating various applications running on different platforms that require the concurrent processing of information. FairCom's Web Server offers multiprotocol interaction between the client and server processes.

The Web Servers cost from \$445 to \$3,745, depending on the number of users, and are licensed in a per server machine basis. OEM distribution and source are available.

FairCom Corp., (800) 234-8180 or (573) 445-6833, fax (573) 445-9698, e-mail faircom@cerf.net, or see its Web site at <http://www.faircom.com>.

READER SERVICE NO. 107

OS/2

Just Announced OS/2 Internet Sites

OS/2 Information Center

<http://www.os2forum.or.at/TeamOS2/English/>

This is a great source of OS/2 information on the Web, courtesy of IBM Austria.

The Unofficial Building for OS/2 Merlin Page

<http://www.in.net/~mcdonajp/bfos2m.htm>

This site promotes the building of new OS/2 applications for the release OS/2 Warp 4.0, complete with its own Web-ready logo.

WarpMap

<http://falcon.mercer.peachnet.edu/~johnsont/warpmap/>

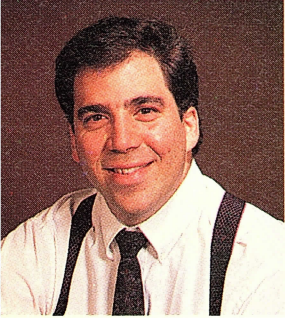
A complete graphical map of the OS/2 world as accessible by the World Wide Web. See if your area is represented.

OS/2 Computing

<http://www.iceonline.net/home/ronnyk/>

The latest addition to the burgeoning OS/2 electronic newsletter market.

(Information courtesy of Alexander Antoniadis, sander@stardock.com)



LaunchPads, Startup Order, WM_QUIT, and More

BY DAVID REICH

TIP 256

AUTOSTARTING LAUNCHPADS

Q: I followed Tip 239 and created a LaunchPad template (as shown in the REXX program). The only drawback is that this new LaunchPad is not started automatically by the system during booting. Adding a shadow of each new LaunchPad to the startup folder corrects this problem. Is it possible that the REXX program is lacking a command to enable the new LaunchPad during startup? Is there another way to make the system recognize the new LaunchPads during boot?

A: The new instances of the WPLaunchPad class are just new objects, and as such, behave like other objects in the system. In the case of a LaunchPad, there is a special one for the desktop folder whose startup is controlled by the AUTOSTART line in *config.sys*. As you noticed, the LaunchPad class is a special type of object class. Not all instances of the WPLaunchPad class will start on system boot (especially because there was only supposed to be one in the system anyway).

An interesting use of the LaunchPad facility (especially now that the WarpCenter in OS/2 Warp 4.0 is the new control center) is to have one LaunchPad for each work area and allow the WarpCenter to control the overall desktop. A work area is an attribute that you can assign to a folder through its Properties notebook (in OS/2 Warp 4.0, the Settings notebook

is called the Properties notebook). This property causes the system to store the state of objects contained within the folder when the folder is closed, and to restore that state when the folder is later reopened. You can put a LaunchPad in a folder that is a work area as well, and whenever this folder is opened, the LaunchPad is opened as well, appropriately positioned to control the behavior of that work area, which can be helpful when restarting other LaunchPads as well.

TIP 257

STARTUP ORDER

Q: What determines the order in which objects in the Startup folder are started? I'd like to make sure that the antivirus program always starts first, so that it's operating in the background when other programs open.

A: The Startup folder opens each object contained within it when the system first boots. The order, while deterministic (that is, repeatable as long as the folder contents do not change) is not easily controlled by the user in the default icon view. If you want to specify the order in which objects in the Startup folder start, open the Properties notebook (by selecting the folder with a right-click and selecting Properties with a left-click) and select the View tab on the notebook. Select nonflowed for the default view.

When the nonflowed mode is the default view, objects in the Startup folder are started in the order in which

they appear. Once you have your anti-virus program in the first position, you can be sure it will be started first.

Alternatively, depending on the antivirus program, you may also be able to start it from *config.sys* using the RUN= or CALL= statements. As long as the antivirus program doesn't require the graphical services of PM, you can run it from *config.sys*.

TIP 258

QUIT OR CLOSE?

Q: I have a puzzling programming question for you. I have an application that has several windows. Each window has an entry in the window list, so my users can close one from the list if the window happens to be covered or invisible. However, whenever any of these windows are closed in this manner, the entire application ends. Should I be expecting a WM_QUIT or WM_CLOSE when the window is closed from the Window List? I even went so far as to stick a DosBeep call in my window procedure, but when I close the window from the Window List, I don't hit that call. Can you help?

A: To answer the direct question, WM_QUIT is sent. However, this will not help you solve the problem. From the description, especially the last comment, it appears that all of these windows use and have their input managed by the same message queue.

Recall that the message dispatch loop in OS/2 programs,


```
while( WinGetMsg( parms))
{
    WinDispatchMsg( parms );
}
```

sends messages to the appropriate window procedure. When **WM_QUIT** is received, the **WinGetMsg** returns **FALSE**, causing the loop to end and executes the termination code.

Because all the different windows are managed by the same queue and, hence, the same message processing loop, a **WM_QUIT** caused by any window on that queue will cause the whole application's loop to end and the application to go away. The key information leading to this conclusion is the fact that the window procedure never got called, which indicates a **WM_QUIT** to the message loop.

A first thought would be to call **WinCancelShutdown** for those windows so they would not get **WM_QUIT** messages, but **WinCancelShutdown** operates on a per-thread basis, or more precisely, per-message-queue basis. Therefore, calling **WinCancelShutdown** will prevent the application from ever getting a **WM_QUIT** from the Window List execution or from system shutdown.

The real solution is to manage each of these windows with a separate message queue, ideally, on dedicated threads. At a minimum, you need to have separate queues for the windows that you want to be able to close without affecting any others.

TIP 259

RECOGNIZE NEW MEMORY

Q: I was disturbed to read that OS/2 does not recognize memory added after installation. Is this true? I'm going to add 32MB RAM but am now wondering how much work I have ahead of me. I have a tape backup and can easily restore everything after the upgrade, but will I see an improve-

ment in performance, and will everything work as it did?

A: OS/2 most certainly does recognize memory added to your system. Each time the system boots, OS/2 queries the hardware for certain things, and memory size and type is one of them. What's confusing you (or confusing the source of your information) is that when you install, OS/2 looks at the amount of memory to create the initial size of the swapper file for you. OS/2 will set up your *config.sys* file with various parameters of the system during system installation. The memory size affects the **SWAPPATH** statement; in particular, the second number in the **SWAPPATH** statement in *config.sys*. The smaller the amount of memory in the system at install time, the larger the system will set up our initial swap file size. Conversely, the more memory you have, the smaller the initial swap file. If you add memory, OS/2 will see and use it. If you go up to 32MB, just change that number to 2048, so it is

```
SWAPPATH= wherever x 2048
```

Making this change will give you a 2MB swap file when the system boots up. If you find later on that you overcommit even your 32MB, look for the average size of your swap file during system operation, change the default swap file size (the second number in the **SWAPPATH** statement) to the nearest megabyte (multiples of 1024 rounded up), and reboot.

TIP 260

SPACES IN PASSWORD

Q: Thanks for showing how to use CompuServe as an Internet Service Provider (ISP) by configuring the Dialer (Tip 233, "WebExplorer Through CompuServe," June 1996, p. 20). While I'd already configured the Dialer for my local ISP, I'd long wanted to do the same for CompuServe, but

had gotten the idea that it involved the modification of lengthy script files. Your tip encouraged me to try it, and it turned out to be quite simple. There was one glitch, however.

The Dialer wouldn't accept the embedded space in my CompuServe password. The Dialer just choked, but gave no error message. Do I have to change my password?

A: For any ISP you might have in the Dialer, you should be able to substitute a backslash and the letter b (\b) for the embedded space in the password. The \b represents a blank space to the dialer.

TIP 261

WIN32S (TIP 241)

David Oliver discusses Tip 241 ("Win32S Updates," July 1996, p. 17-18).

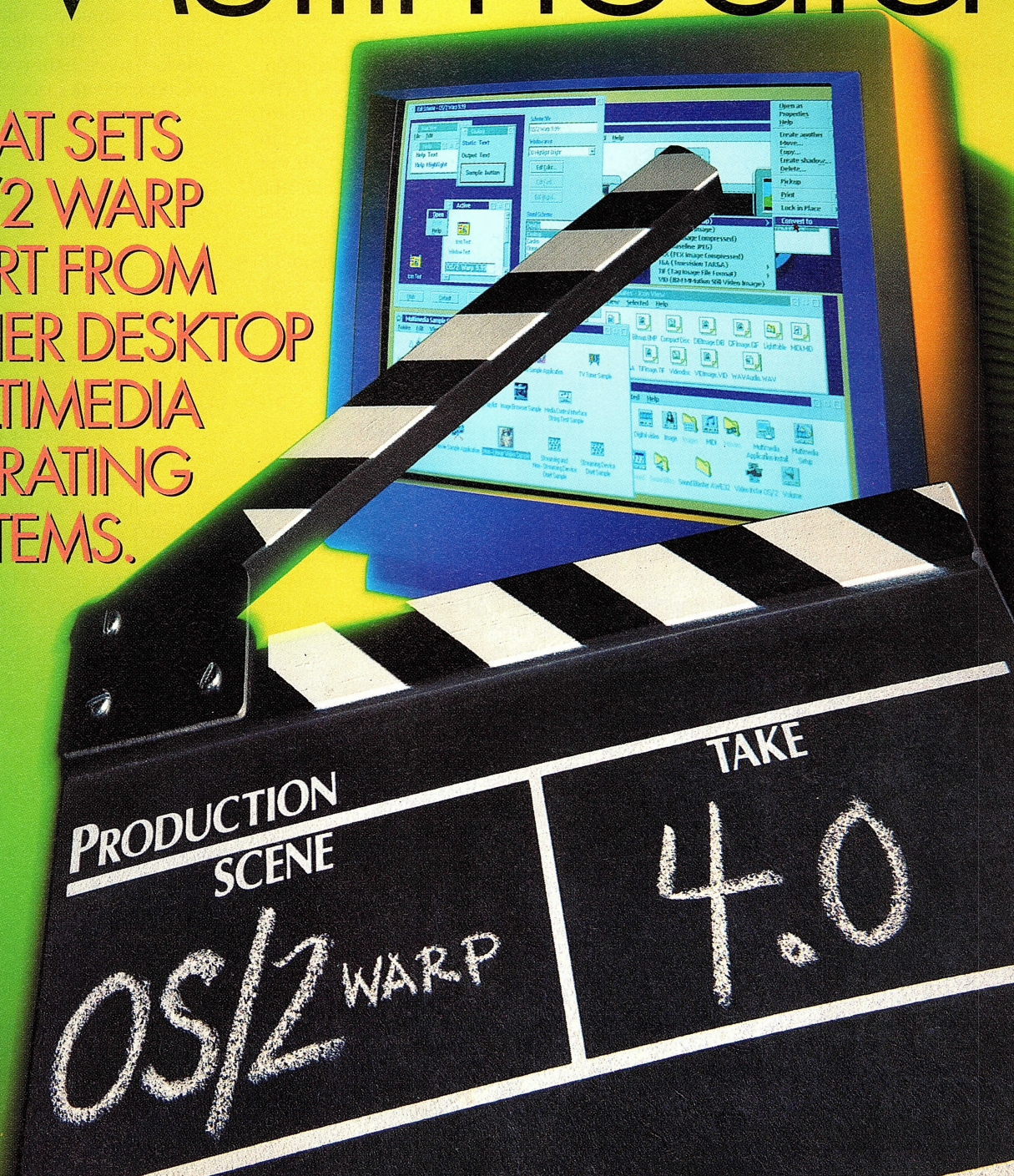
I think the problem addressed in Tip 241 about Win32S is actually a matter of installing the correct Win32S device driver for OS/2. I was getting the same kind of error messages when I tried to run Virtual Chess, a Windows 3.1 program. The program had installed Win32S 1.20, which isn't supported by earlier versions of OS/2 Warp. IBM released an updated device driver to support Win32S 1.15 to 1.25. The device driver is *vw32s.sys* and can be picked up at any of the major sites or by doing a search at <http://www.shareware.com>. The *config.sys* file must be changed to reflect the new driver and the parameters. I believe that only the version and modification numbers need to be changed (for example, for 1.20 the *config.sys* line reads "<Path>VW32S.SYS 1,20"). Those error messages cleared right up after I made these changes.^{OS/2}

David Reich has been with the OS/2 development team since 1987. He is the author of Designing High-Performance OS/2 Warp Applications (John Wiley & Sons). Questions can be addressed to David at either 76711.632@compuserve.com or speedracer@austin.ibm.com.

Doing Multimedia

BY BRIAN PROFFIT

WHAT SETS
OS/2 WARP
APART FROM
OTHER DESKTOP
MULTIMEDIA
OPERATING
SYSTEMS.



Graphics accelerators, sounds cards, large hard disks, quad-speed CD-ROM drives...all of the hardware required for multimedia applications is now being included as standard equipment in many computer systems. People who are considering their first computer purchase often cite a desire to "do multimedia" as a requirement.

But multimedia means different things to different people. At its most basic, "multimedia" simply refers to the use of multiple mediums for communication with the user. It could be argued that all computers are multimedia, because they use both a keyboard and a display. And while your PC speaker isn't the highest quality sound device in the world, the miscellaneous beeps it produces add yet another communication medium.

Realistically, though, more is required before most people would classify something as "multimedia." If the beeps turn into music or the spoken word, the sounds have become multimedia. If static onscreen images become animated, or morph into full-motion video, the displayed output has become multimedia. This criteria applies to input, too. If you communicate with the computer through spoken commands rather than the keyboard, that qualifies as multimedia. And that's why computers classified as multimedia need the additional hardware. Full-motion video isn't possible (at least not smoothly) without fast processors, fast graphics adapters, and fast high-capacity storage devices. Voice input/output and music playback aren't possible without sound cards.

So far, of course, we haven't described anything that can't be done on a DOS system. And, in fact, DOS has been used successfully for multimedia, particularly in the form of high-powered video games. So what does OS/2 Warp 4.0 actually offer the multimedia user that's different from other multimedia platforms? As we explore this question, keep in mind IBM's stated target market for Merlin: the enterprise client system. Its design point was the business desktop. As a result, it was never IBM's intention to replace DOS, or even Windows, as a games platform. Regardless, we will see several features that make OS/2 Warp a better multimedia system, even for games, than its predecessors.

Fast and stable

In the business environment, multimedia has been primarily used in applications such as kiosks and computer-based training. In both situations, a person who may have little or no computer knowledge must successfully interact with the system, possibly with no computer professional around to help if problems occur. Crash protection is a requirement in this situation. Compared to Windows 95 and Windows NT, OS/2's kernel is now the most mature. While Microsoft made significant kernel changes in Windows NT 4.0, OS/2 Warp 4.0 is built primarily on the same thoroughly tested engine as its predecessor. That brings great reliability.

That reliability is important, because it distinguishes OS/2 as a stability leader. Let's face it, DOS, which gives programs direct access to all hardware devices, has some performance advantages. But that same direct access

means that a single bug in a program can bring the entire system down. OS/2 has always outperformed Windows (in any of its incarnations) at running DOS multimedia applications and has provided a much more stable environment than DOS.

But what about OS/2 multimedia, and improvements in version 4.0? Because of its multithreading abilities, OS/2 has an advantage for complex operations. And the pre-emptive multitasking model has allowed other system functions to run without breaking up video and audio significantly. On the other hand, OS/2's overhead has sometimes caused performance to be less crisp than might be preferred.

Some system-wide steps were taken in OS/2 Warp 4.0 that benefited multimedia applications, as well as other program types. Audio and video can take a lot of disk space, and, to be played back smoothly, that information must be retrieved from disk quickly. The paging model was improved so that memory mapping and swapping takes place more efficiently. HPFS partitions, in particular, were sped up even further through changes to management of the cache and better exploitation of the Pentium and Pentium Pro processors. The result is smoother playback of multimedia files.

Expanded device support

You can now playback those multimedia files on a wider range of hardware. The Device Driver Pak (DDPak) included with OS/2 Warp 4.0 contains a large number of device drivers, as well as Internet links for downloading even more. The result is that dozens of new devices, including new audio chipsets and Plug-and-Play cards, can be used with OS/2. IBM claims support for more than 2,900 devices—not far behind Microsoft's claim of 3,000 devices for Windows NT 4.0 and catching up fast to Windows 95's 4,000-device support (again, according to Microsoft). IBM has an agreement with each vendor that has drivers on the DDPak that the vendor will provide support for the driver. If you want to find out if your hardware is supported, check the list at <http://www.austin.ibm.com/pspinfo/os2hw.html>.

The list of supported devices should continue to expand as a result of another addition to OS/2 Warp: GRraphic Adapter Device Driver (GRADD) technology. Developing a display driver isn't a trivial task. Some vendors haven't written OS/2 device drivers for their display adapters simply because they didn't have enough programming resources to support all operating system platforms. GRADD takes a lot of the code that used to be required in device drivers and pulls it into the OS/2 video interface. As a result, much less effort is required from the hardware vendor, and they can afford to develop OS/2 drivers for their cards. The GRADD interface also makes it easier for video drivers to migrate to future versions of OS/2.

Expanded software support

Application developers can exploit the functions of those drivers more directly by using the Direct Interface Video Extensions (DIVE) API. The DIVE interface allows better video performance by providing developers a way of

bypassing some layers of OS/2 to get to the video hardware. Much of video motion is accomplished through a bit-blit technique, wherein a set of bits on the screen are moved or "blitted" to another location. The DIVE library has been optimized in version 4.0 for high-performance blitting and exploits the capabilities of graphics acceleration if your display adapter supports it. The result is faster, smoother multimedia video.

OS/2 Warp 4.0 also supports the Open Graphics Language (OpenGL) interface designed by Silicon Graphics. This cross-platform interface is designed to simplify development of graphics applications, including animations and video. With the power of version 4.0 and support for the OpenGL interface, many professional applications, once available only on workstation systems, may now move to the business desktop.

Yet another video programming interface is the FLI/FLC standard for animations. This interface was present in earlier versions of OS/2 Warp, but now the bugs have been fixed, the programming interface's performance has been turbo-charged, and FLI/FLC is being exploited by OS/2 itself. Start the OS/2 Chess program (just for test purposes, of course), and you'll see a 3-D animation introducing the program. However, this is just a small indication of the potential of the FLI/FLC interface. If you create an audio file with the same name as the FLC file, OS/2 Warp plays them simultaneously as a "movie."

Similarly, audio support is enhanced through the new Direct Audio Routines (DART) interface. OS/2 handles multimedia audio through a series of hidden "devices." These devices communicate with each other in layers. A program's waveform (.wav) audio output is played by a waveaudio device, whose output is sent to the ampmix device where it is mixed with other audio devices (such as CD audio, microphone, or line input) before being sent to the sound card. But in time-critical situations like games, the layers of software between the waveaudio device and the ampmixer can delay performance unacceptably. Have you ever noticed that when your system is busy, there may be a

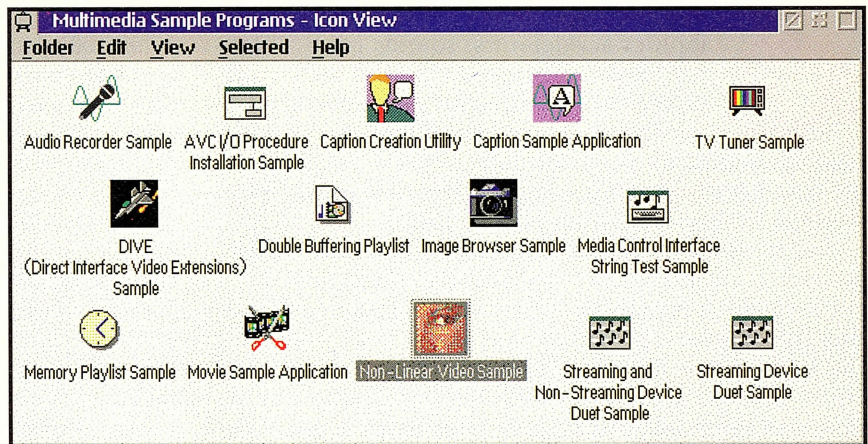


Figure 1: The toolkit provides numerous samples to aid multimedia development.

noticeable delay between the time a window opens and when you hear the odd "tweep" sound IBM associates with that event? Well, it's unacceptable for a game-player to discover himself dead before he hears the warning beep that he was low on life force! The DART interface allows developers to bypass the waveaudio device entirely and send input directly to the ampmixer.

IBM didn't forget the user with special needs, either. MMPM/2 has a code library that supports captioning, similar to the closed-captioning technique used in television to provide readable text for the hearing-impaired. You can synchronize an audio file with a text file, so that the captions appear at precisely the same time as the words are spoken. The size and appearance of the caption window can be set by the programmer.

Music output has been enhanced and simplified to synchronize with the new Real Time MIDI (RTMIDI) support. Bringing object-oriented development to music, RTMIDI is based on nodes that send and/or receive MIDI messages. By providing separate queues for real-time MIDI messages and the MIDI SysEx messages, OS/2 Warp can go beyond just playing MIDI songs to actually controlling MIDI devices asynchronously.

OpenDoc is another interface designed to make life easier for developers and users alike, whether running OS/2, Windows, DOS, or Mac operating systems. It simplifies development of small, portable chunks of code called parts and allows users to mix and match those parts as they wish. It may be helpful to think of it

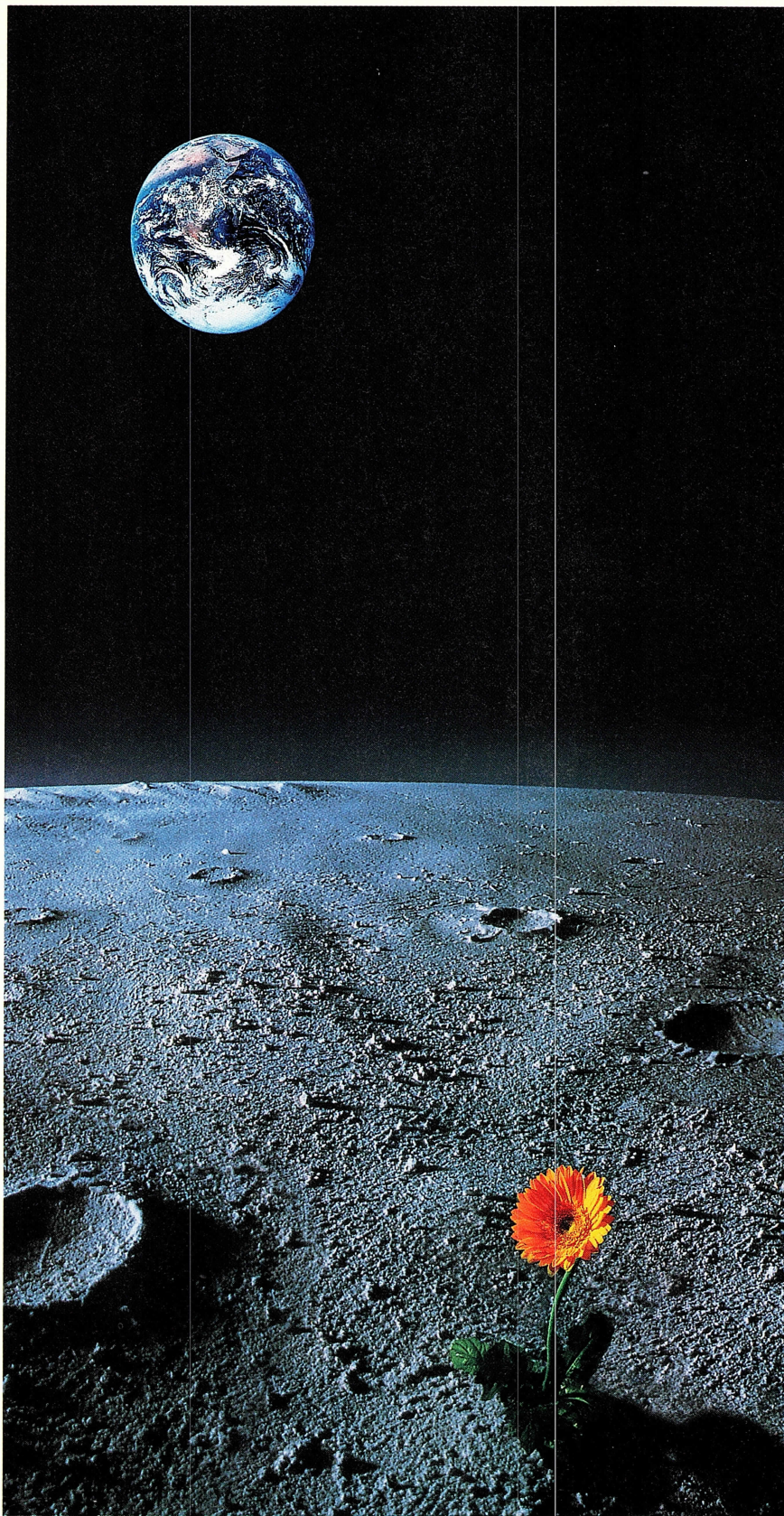
as a superset of OLE. An enhancement of the OpenDoc specification defines a set of multimedia standards. Multimedia OpenDoc is supported by OS/2 Warp 4.0, and that, too, should help attract new multimedia applications.

Finally, for those developers interested in both Windows and OS/2, version 4.0 supports the Open32 interface. Open32 (formerly referred to as the Developer API Extensions, DAX, and DAPIE) is designed to allow programmers to write one set of source code that can be compiled and run on both Windows and OS/2.

And there's more coming! IBM promises software MPEG playback capability for OS/2 Warp in the near future, probably through a FixPak. But we're not dependent upon IBM for new support. The MMPM/2 interface allows other developers to plug in their own additions and make them appear as if they were part of OS/2. For example, Practice Corp.'s QuickMotion brings the ability to play QuickTime movies on OS/2. Do you need to learn QuickMotion's proprietary movie viewer? Nope. By using the MMPM/2 interface, the ability to playback .qt files is automatically and transparently added to the existing OS/2 media viewers. Let's hope other developers will follow their lead.

Support for speech recognition

The DART interface contributed to the possibility of VoiceType speech recognition without requiring a custom-designed VoiceType adapter card in your system. And once VoiceType



OS/2® Warp is a proven performer in the Fortune 1000 companies and the world's financial institutions.

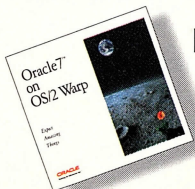
Oracle7™ dominates data management with the industry's most advanced scalability, reliability, distributed computing and replication features.

Together, these powerful technologies let everyone in your company work in an efficient and integrated environment. From laptops to distributed servers, Personal Oracle7™, Oracle7 Workgroup Server™ and Oracle7 Server™ for OS/2 Warp give everyone access to

EXPECT AMAZING THINGS FROM ORACLE7 ON OS/2 WARP.

corporate data. Soon, with Oracle Developer/2000™ for OS/2 Warp, you'll have one of the easiest and most productive platforms for enterprise-wide client/server development.

All of these products are backed by a mutual commitment from IBM and Oracle. This provides proven, reliable technology today, along with greater capabilities far into the future. So start running Oracle7 on OS/2 Warp now, and watch miracles blossom in your business.



FREE 60-DAY TRIAL! Call 1-800-633-0747, ext. 9333 now for a free 60-day trial of Oracle's OS/2 databases and IBM's OS/2 Warp products on CD. Or visit the Oracle and IBM web sites for more information: <http://www.oracle.com> or <http://www.ibm.com>

ORACLE®
Enabling the Information Age™

OS/2 WARP

©1996 Oracle Corporation. Oracle is a registered trademark, and Oracle7, Personal Oracle7, Oracle7 Server, Oracle7 Workgroup Server, Oracle Developer/2000 and Enabling the Information Age are trademarks of Oracle Corporation. IBM and OS/2 are registered trademarks of the International Business Machines Corporation. All rights reserved. All other company and product names are the trademarks of their respective owners.

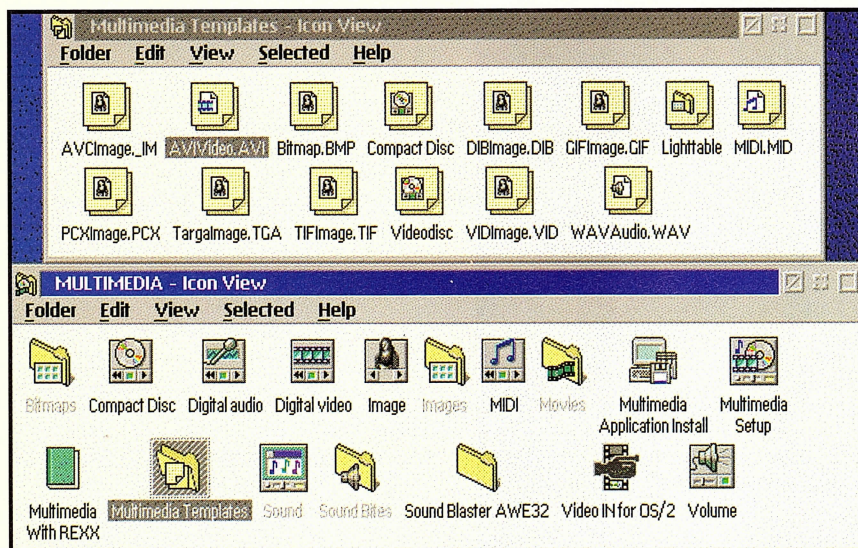


Figure 2: A complete set of tools for creating and reviewing multimedia objects.

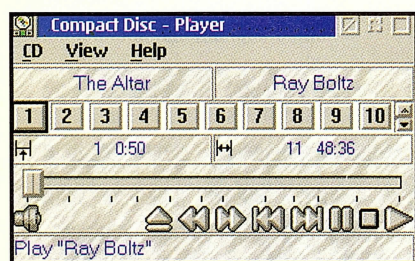


Figure 3: Multimedia players got a nice facelift.

became feasible on any sound card supported by MPM/2, IBM was able to include it in OS/2 Warp 4.0.

While we still haven't reached the Star Trek days of asking the computer abstract questions and receiving an answer, voice control has moved past the novelty stage and is now a viable input option. IBM takes speech support so seriously that it has included a headset with an active noise reduction microphone in the box with OS/2 Warp 4.0! Instead of an add-on, VoiceType feels like an integral part of OS/2.

Desktop navigation, consisting of a very small vocabulary of single words like "open," "close," "up," and "down," is relatively straightforward because so few words need to be distinguished. But in the past, even simple speech navigation has usually depended upon special speech hardware. OS/2 Warp 4.0, however, can recognize and respond to navigation commands using standard sound cards, without requiring you to train the system to your voice.

But IBM went beyond speech navi-

gation to integrate speech deeper into OS/2. You aren't limited to single words, and you don't even have to see the windows you want to manipulate. No matter what is on the desktop, the spoken command, "Jump to System Editor," will open the System Editor immediately. You can create your own voice commands and attach them to desktop objects. For example, the command "Hi Boss" could open your spreadsheet program at maximum window size (covering whatever else might have been on the desktop). In fact, you'll find a Speech page in the Properties Notebook of each desktop object. You can also use normal speech for navigation, rather than being forced to speak each word separately. For example, you can resize a window with a command like, "MoveBottomBorderDownThree."

When it comes to dictating text, however, you still need to speak in discrete words, with a brief but definite pause between them. And while it isn't necessary, you will find accuracy improves greatly if you enroll with VoiceType, speaking a series of predefined words and phrases so that the system can become accustomed to your speech patterns.

Just as the DIVE and DART interfaces make it easier for multimedia developers to write programs using video and audio output, IBM included Speech Recognition Application Program Interfaces (SRAPIs) to allow developers to write applications that exploit speech input. OS/2 Warp 4.0

should attract many new developers eager for voice technology.

By the way, IBM didn't just document some interfaces and leave it up to the poor developer to interpret them. Figure 1 shows some of the excellent sample applications in the toolkit, demonstrating techniques for exploiting these new abilities.

Existing applications

Of course, we're not just looking to the future for multimedia applications. As mentioned in the introduction, DOS has been used quite successfully for multimedia programs that didn't need to share the system with anything else. While it's true that OS/2 has always been superior to Windows in its DOS support, some DOS programs still exist that just won't run on OS/2. OS/2 Warp 4.0 has an answer for those programs, too.

Dedicated DOS/Windows Sessions allow a user to hibernate OS/2 operation (without shutting down) and boot DOS—not a DOS emulation within OS/2, but your existing version of DOS. Because you're running DOS itself, all of your programs should work as usual. When you exit the Dedicated DOS/Windows Session, OS/2 is reloaded with all of its programs and windows reappearing exactly as you left them.

Support for Windows multimedia applications has been improved as well, with Warp 4.0's support of the Win32's 1.25a specification. This improvement opens OS/2 up to many more 32-bit Windows applications than before.

Bringing DOS and Windows multimedia applications into your OS/2 environment is easier than before, because the migration database has been expanded to include dozens more programs. The migration database is the facility that OS/2 Warp uses when it scans your disk for existing programs. Not only does the database tell OS/2 what programs to locate, it provides information that lets OS/2 automatically tweak the DOS and Win-OS/2 settings for those programs so they work best.

Bundled multimedia programs

As you can see in Figure 2, a wide variety of tools is included in OS/2

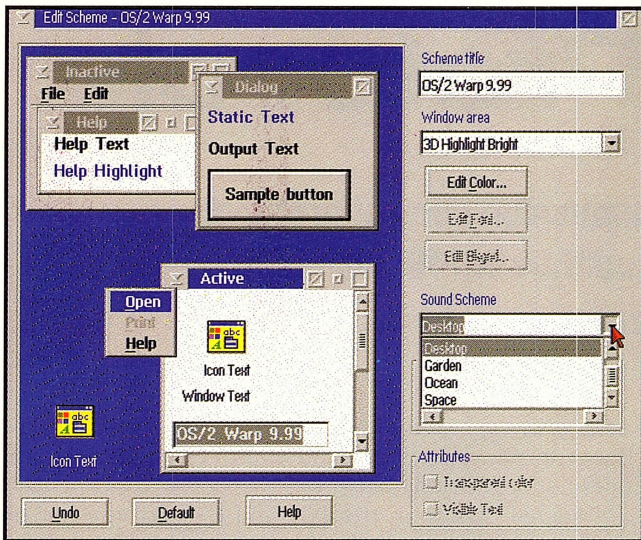


Figure 4: Now desktop schemes can include groups of custom sound effects.

Warp for creating, editing, playing back, and viewing multimedia objects. Most of these tools existed in earlier versions, but they've received facelifts and bug fixes in version 4.0 (Figure 3). These devices are fully object-oriented and are now the multimedia parts used by Multimedia OpenDoc.

The devices have a "quick start" option, too. If you double-click on a multimedia file, whether sound, image, or movie, the file is played immediately, without the viewer or player even appearing on the desktop. The CD-Audio Player has another neat new feature—it can detect and adjust when your CD-ROM drive changes letters. If you repartition your disk as often as I do, this feature saves the annoyance of having to make the adjustment manually in the MultiMedia Setup notebook.

Even the Workplace Shell Desktop has added multimedia abilities in OS/2 Warp 4.0. The Scheme Palette, which allows you to create an integrated desktop appearance, now allows you to specify a sound scheme to accompany that appearance (Figure 4). Similarly, the Sound object in the System Setup folder has a Scheme page in its notebook.

You don't have to be a budding multimedia artist to appreciate the value of the VideoIN program included in the BonusPak. With its expanded support for video capture devices, version 4.0 now makes digitizing vi-

deo accessible to almost anyone. Whether you want to be able to replay that home run over and over again, or to just capture the image of your family to use as desktop wallpaper, VideoIN brings multimedia authoring to the casual user.

When you saw the section heading, "Bundled multimedia programs," did your thoughts immediately move to FaxWorks? They should have, because version 2.00.20 Lite in the BonusPak has new multimedia abilities. FaxWorks can now turn your computer into an answering machine, recording your greeting, and recording and playing back messages if you have supported voice/fax hardware.

And don't forget the Light Table, a folder specifically designed for organizing your images. A Light Table is created by dragging a copy from the Multimedia Templates folder. While this function was present in the earlier OS/2 Warp 3.0 BonusPak, it has been spiffed up in version 4.0. For example, Figure 5 shows how easy it is to convert images from one format to another. IBM decided to take advantage of its own function finally, and the Movies and Bitmaps folders seen in Figure 2 are now Light Tables, so thumbnail views of the images can be seen.

A totally new addition to this version is the TV Tuner application. If you have TV-capable hardware, this application will bring TV-in-a-window to your desktop. This program is included as a sample application in the Toolkit, demonstrating the multimedia abilities of OS/2. At the time of

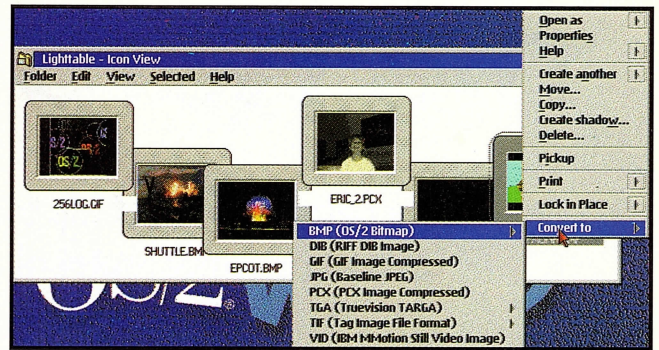


Figure 5: The Light Table lets you convert images from one format to another.

this writing, IBM was also considering including a TV Tuner on the CD Sampler.

Whether you want to be able to replay that home run over and over again, or to just capture the image of your family to use as desktop wallpaper, VideoIN brings multimedia authoring to the casual user.

Making it work

As always, if you want a lot of function, there's a price. It takes power. The 12MB 486/33 that is the nominal minimum for OS/2 Warp 4.0 won't do the job. You should consider 16MB a minimum for video playback and 24MB a minimum for speech dictation. You may be able to handle speech navigation with 16MB, but the expanded vocabulary needed for dictation requires more. A 90MHz Pentium-based system should also be considered the minimum for speech.

That may seem like a lot of hardware, but look what you get in return. What with better performance, better support for existing applications, better interfaces for development of new applications, improvement of existing applications, and inclusion of new applications, OS/2 Warp 4.0 is by far the best multimedia platform the OS/2 world has ever seen.

OS/2

Brain Proffitt was part of IBM's OS/2 team and left IBM to become the director of PC Week's Corporate Labs. He is now the president of Visionary Research, senior contributing editor for OS/2 Magazine, and solutions advisor to PC Magazine. He can be reached at 75300.1466@compuserve.com.

The Warp Protocols

The datagram begat the transmission control protocol and the Internet protocol, and thus TCP/IP was born.

By Kirk Demaree and Mike Robbins

In the Beginning, the Net was without form and void. The Data Processing gods, looking down from Mount DARPA (Defense Advanced Research Projects Agency), saw this, and said, "Let there be byte." And seeing that the byte was good, they decided that more bytes would be better, and said, "Let there be the octet." And the octet begat the datagram, and the datagram begat the user datagram protocol (UDP), the transmission control protocol (TCP), and the Internet protocol (IP). Using their new TCP/IP tools, the DP gods created ARPANet, and the Web was born.

Today, the TCP/IP protocol suite serves as the backbone of the Internet, a system that has experienced phenomenal growth, exceeding usage predictions by several orders of magnitude. As Web surfing hit a frenzied peak during the recent Olympics, we looked at IBM's latest TCP/IP toolkit found in OS/2 Warp Server 4.0 and OS/2 Warp Connect 3.0. This article is a tour of that toolkit for network managers and administrators familiar with OS/2 and networking topics; space simply does not permit tutorial-level explanations of many of the topics we'll be covering.

Alphabet soup or wedding cake?

TCP/IP is not a single protocol, but rather a term used to refer to a collection of standards and protocols known as "the Internet protocol suite." To understand the role of TCP and IP, imagine a multilayer wedding cake, with the bottom layer consisting of your local network protocols. The next layer up is IP (gateway level), forming a gateway connecting to the next layer (host level), which consists of TCP and UDP. The "icing" on the cake is comprised of a collection of high-level protocols (application level), such as FTP (file transfer protocol), SFTP (simple FTP), Telnet, TFPT (trivial FTP), SMTP (simple mail transfer protocol), NNTP (network news transfer protocol), POP2 (post office protocol 2), BOOTP (bootstrap protocol), and ARP (address resolution protocol), to name but a few. The cherry on top of the cake is the World Wide Web (WWW), which utilizes the hypertext transfer protocol (HTTP).

Specifically, IP provides support for transmission of blocks of data (datagrams) between sources and destinations. IP uses universal addressing consisting of fixed-length addresses parsed into four 8-bit octets, yielding a 32-bit dotted decimal address format. IP also provides support for fragmentation and reassembly of longer datagrams when required. TCP provides host-to-host protocol support, including support for asynchronous communica-

tions with application-level programs, thus providing the flow control, sequencing, and end-to-end reliability features not provided by IP.

Detailed papers on the TCP and IP specifications are available through the Request for Comment (RFC) documents located at <ftp://ds.internic.net/rfc/rfc793.txt> and <ftp://ds.internic.net/rfc/rfc791.txt>, respectively.

Initiating the OS/2 Warp protocols

Support for TCP/IP—within OS/2 Warp Server 4.0 and OS/2 Warp Connect 3.0—is installed during the initial selection of the network adapter card and associated protocols. The IBM TCP/IP protocol should be selected from within the LAN Adapter and Protocol Support (LAPS) configuration GUI. Unlike other protocols, however, final configuration is performed using the TCP/IP Configuration Utility (found in the TCP/IP program group) after completing the full product install. Once the LAPS configuration is completed and the system rebooted, the basic TCP/IP stack is operational.

Selecting the TCP/IP Configuration icon opens the configuration tabbed notebook GUI. This notebook provides access to controls for general network interface parameters, routing, host name resolution services, service autostartup controls, server security (Telnet and REXEC), default server URLs (NewsReader/2, Gopher, and WWW), remote printing services, mail environment settings (Ultimail, POP, and NewsReader/2), SMTP mail gateway, and the SNMP Manager and related SNMP trap configuration.

If you are using manual IP addressing, the minimum configuration for OS/2 Warp Server 4.0 requires that you enter the server IP address and subnet mask. If your system is to receive a dynamically assigned IP address, you must select the dynamic host configuration protocol (DHCP) setting. In addition to support for up to eight LAN Interface/adapters, a "loopback interface" setting is also available. We found we had to engage this option, using the manual setting to establish an internal IP address of 127.0.0.1 (the ping-self address) to get our OS/2 Warp Server system to respond to pings sent from other systems to its 192.100.100.190 address. According to sources within IBM's Austin Technical Support Group, this feature was originally installed to provide support for older network interface cards, but we found it useful in getting our two Compaq Deskpro XL 6150s to respond correctly as well.

Assuming that a firewall/router is in place, you'll need to select the Routing tab and establish a net route to the

firewall's IP address. Basic TCP/IP configuration is completed with selection of the Hostnames tab, where entry of the host machine's name, local domain name, and LAN Name Server configuration setups can be entered. Name resolution can be achieved using either IP addressing or by searching a list of systems by domain name. At this stage, the OS/2 system should provide basic TCP/IP services. Users wishing to use the NewsReader/2, Gopher, and WebExplorer systems will need to make a brief visit to the Servers Tab to establish the default URLs for these applications.

If the OS/2 Warp Server system is to be accessed as an FTP site, the administrator will need to establish a list of trusted users to be stored in the TRUSERS database. A separate password is available for support of REXEC users (RHOSTS database) wishing to access the RSH server. The Security tab also provides for the entry of a default Telnet password.

OS/2's TCP/IP Printing tab allows the user to define a remote print server to facilitate printing via TCP/IP instead of using LAN Server-based printers. The local workstation's print queue is redirected to transmit print jobs via the LPR or LPRMON daemons to any remote system running the LPD daemon, such as other OS/2 systems, UNIX workstations, or MVS hosts.

OS/2's TCP/IP applications

With the exception of the DHCP/DDNS Server applications, both OS/2 Warp Server 4.0 and OS/2 Warp Connect 3.0 provide identical TCP/IP application suites, including basic Telnet (with emulation support for VT220, VT100, ANSI, NVT, and HFT, as well as dedicated support for 3270 and 5250 varieties), FTP-PM (GUI-based FTP system), WebExplorer, NewsReader/2, Network Dialer, Ultimeia Mail/2, Gopher, and TCP/IP Utilities.

The TCP/IP Utilities suite consists of FTP (character/command-driven interface), PM Ping (GUI-based multihost ping system), SNMPTrap, and TFTP. Support is also provided for DOS and Windows with the DOS/Windows TCP/IP Access icon, offering Wping (Windows interface, similar to PM Ping, but allowing only a single host) and Ping (DOS ping with IP address entered by right-clicking the icon to access the Settings display). Help documents are included in the TCP/IP group to provide support for developers using the REXX Sockets API and REXX FTP API.

Warp dynamics

Warp Server 4.0 marked IBM's entry into the growing field of elite networking products offering support for DHCP.

OS/2 Warp Server 4.0 also includes a complimentary dynamic domain naming system (DDNS) to provide additional support in resolving the translation of domain names into matching IP addresses.

DHCP is an extension of the BOOTP protocol, which was originally designed to support IP addressing with diskless workstations. Specifically, BOOTP uses an IP/UDP bootstrap protocol to allow the diskless client to discover its own IP address, determine the address of a server host, and receive the name of a file to be loaded and executed, thus completing the boot cycle. DHCP, on the other hand, dynamically allocates IP addresses and related configuration information to any newly attached host and later allows for the reallocation of the IP address based on three leasing schemes. Although DHCP extends the capabilities of BOOTP, DHCP systems must still be compliant

with the BOOTP protocol (as set forth in RFC 1531), providing support for BOOTP relay agents, service requests from existing BOOTP clients, and routers. Further, DHCP systems must retain host configuration information regardless of host or DHCP server reboots.

OS/2 Warp Server 4.0 fully supports all three levels of DHCP IP address leasing: automatic allocation, dynamic allocation, and manual allocation. In the case of automatic allocation, a host is given a permanent IP address. Dynamic allocation yields an IP address that the host maintains for either a set

lease period or until the host explicitly gives up the address. With manual allocation, the IP address is manually assigned by the network administrator, and the DHCP system merely serves as the transmission medium to convey the information to the host.

Establishing DHCP services within OS/2 Warp Server 4.0 begins with installation of the DHCP server software, which can be done during initial system setup or as a separate installation operation after the main server platform is operational. Although installation of the DDNS system is not required for DHCP operation, the two systems are complimentary. Typically, both are installed at the same time.

Once the base software has been loaded, the final configuration involves using the DHCP Server Configuration GUI to build a .cfg file that contains the required network and options settings and makes minor adjustments to the TCP/IP Configuration Notebook related to DHCP operations. Although several sample .cfg files are included in the Warp Server CD-ROM, we found a basic combination of settings and options that yields a simple, yet operational, DHCP configuration. Once the user establishes

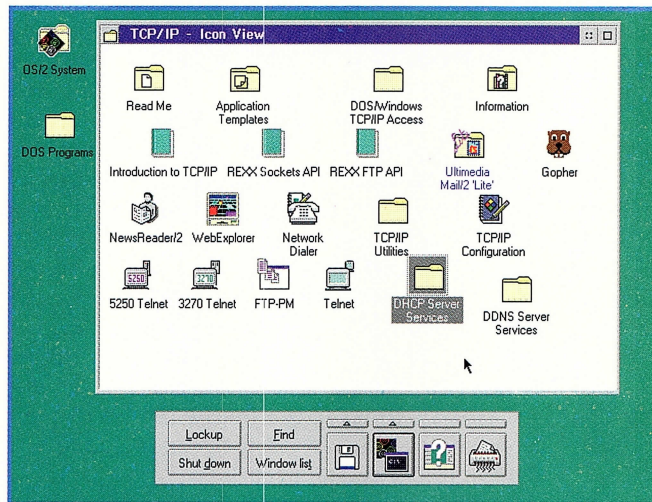


Figure 1: OS/2 Warp Server 4.0's robust TCP/IP application suite includes support for DHCP/DDNS, FTP, Telnet, Gopher, mail, news, and Internet access.

these basic parameters and determines, through tests with a selected host, that the server is properly responding to DHCP requests, additional options can be added as needed. If other DHCP servers are already in use on your network, we advise that you isolate the newly installed DHCP server and test host during configuration testing to ensure that requests are being serviced properly by the test server. Only then should you connect the new server to the main network.

The DHCP Server Configuration GUI uses a two-column drag-and-drop interface. Available commands and options are listed in the left column, and the defined DHCP system configuration is displayed in the right column. Users select items as needed by clicking to display available options and then dragging the option to the right column (the options lists are arranged in a tree structure, with plus symbols indicating multiple option sets). At this stage, users can double-click the newly selected item to open a Settings window, where specific configuration settings can be entered. Unwanted options can be removed by dragging them from the right column onto the Shredder icon located on the main OS/2 desktop.

You can begin a minimum configuration by dragging the Network resource into the right column and double-clicking to open the Settings window. Enter the first three octets of your network address, followed by a zero. Select "Not Subnetting" and enter the entire address for the DHCP server in the Dynamic DNS Server box, provided that at some later point the DDNS system will be running on the same server. If DHCP-assigned IP addresses are restricted to a discrete range, enter the beginning and ending addresses in the "Range" boxes. Addresses that are within the range but will be excluded can be entered in the Exclude Address box. Click the Add button to add the newly excluded address to the "List of excluded addresses."

If your client needs to resolve addresses by referring to the Domain Name server's IP address, click on the "Options" plus symbol, drag Option 6 (Domain Name Server) into the

right column, and enter the IP address of the DHCP server as needed. Similarly, systems that can find the DNS by name will make use of Option 15 (Domain Name).

Finally, click on the Server command in the main menu of the DHCP Server Configuration window and select the View/Change Server Parameters command option. The resulting GUI allows control over log file name and logging options, lease time defaults, and selection of options for BOOTP, Unlisted Clients, and DDNS update support. During testing, setting the lease time default and lease expire interval to two or three minutes is a good idea; you can see if the systems are expiring and renewing leases properly. Once you have arrived at a working configuration, these times can be set to more reasonable levels.

The DHCP server can be started from the command prompt using the syntax `DHCPD -V config.cfg`, where the `.cfg` is the name of the file containing the defined DHCP parameters. GUI-based operation is facilitated by first duplicating the main DHCP Server icon; right-click the icon and select the Create Shadow command option. Users can then access the Settings screen for the new icon, entering the `-V config.cfg` information into the parameters box.

We used a Windows 95 workstation configured to request DHCP IP addressing as our test client. Windows 95 users can open a command prompt and execute the command `WINIPCFG` to view the IP setup that has been provided by the DHCP server. OS/2 Warp Server administrators can manually delete unwanted leases created during testing by entering the command `DADMIN -D xxx.xxx.xxx.xxx`, where the `xxx` represent the unwanted IP address.

During testing, we used a Fluke 685 Enterprise LANMeter to view our running DHCP setup. OS/2 Warp Server 4.0 responded flawlessly to the Fluke's BOOTP request, recording its preconfigured IP address without a hitch.

OS/2 Warp Connect 3.0 doesn't natively support DHCP. However, administrators can load the OS/2 Warp Server 4.0 TCP/IP suite onto OS/2 Warp Connect client workstations from the Server CD-ROM. Because both OS/2 Warp Server 4.0 and OS/2

Warp Connect 3.0 run on top of OS/2 Warp 3.0, the two platforms are compatible. IBM also has a FixPak available that provides DHCP support for OS/2 Warp Connect clients.

All the news...

After using the TCP/IP Configuration Utility to point the news server setting to *news.indy.net*, we experimented with OS/2's news viewer, NewsReader/2. As a text browser, NewsReader/2 is very easy to use, performing connection and list preparation tasks as fast or faster than we've experienced using Netscape.

Upon startup, NewsReader/2 automatically connects to the news service defined in the server settings, loading all group titles into an All Groups window, which is displayed within the main application window. Scroll through the group listings until you find something interesting, such as *alt.aliens.imprisoned*. Double-click on the item, and NewsReader loads the articles contained within the selected group title, displaying title summaries of the articles in a third window. The system efficiently and automatically toggles between the displays, so the overall window display remains uncluttered as you move from the main group to articles and back.

Previously opened groups remain listed in summary fashion within the main window, providing for quick reloading. Deletion of unwanted group entries is as simple as clicking on the entry line and pressing the key, allowing users to rapidly remove those pesky *alt.binaries.erotica* listings from their screens when the boss arrives. However, those interested in downloading graphic images will quickly discover that NewsReader/2 is not capable of viewing or downloading binary files, producing a mass of ASCII characters in place of the attached graphic. On the bright side, the system can be configured to point to an external editor/viewer, thereby allowing users to use NewsReader/2 as a search engine and calling the external editor for actual viewing.

NewsReader/2's configuration options provide an abundance of controls for determining how news articles are processed. Displayed lists can be sorted by article number, sub-

ject, or author. Read articles can be skipped or removed from the displayed list. Alerts are available for new news, including a tone alert. Read/unread statistics can be listed by count or percentage. Header fields allow adjustment of the summary listings, controlling the display of article number, author's name, subject, and line count, as well as the order in which the field columns are displayed. Although we liked the autotoggling window display established by default, NewsReader/2 also lets users opt for a multiple-window view, maintaining child windows within the main parent display. Posting options include predefined fields for signature files (.sig), from:, to:, and organization: entries, as well as group distribution options.

Gopher

Although Gopher sites are rapidly disappearing in favor of more capable Web sites, some systems still run this venerable protocol. Both OS/2 Warp products provide support via the TCP/IP group for the Gopher browser.

By default, OS/2 Warp's Gopher points to *os2info.gopher.ibm.com*, automatically connecting to the site on application startup. The viewer precedes displays of primary directories with a ubiquitous buck-toothed rodent icon. Search engines are marked with a magnifying glass, and documents are marked with the familiar turned-page icon. Navigating the display is as easy as double-clicking on the desired icon, which in turn opens subordinate windows within the parent frame. Double-clicking on the Gopher title-bar icon closes the current window, redisplaying the previous window in the process.

The final protocol

Overall, we found the OS/2 TCP/IP system robust and very easy to install and configure. The TCP/IP Configuration GUI provides easy to use controls for all the major components of the OS/2 Warp TCP/IP suite. Controls for starting various daemons are as easy to use as those found in Windows NT.

We did encounter some problems getting our OS/2 Warp Server system to respond to pings initially. We were able to rectify the problem, however, by establishing the loopback setting mentioned previously and running the command, **SETUP**, which reinitiated the TCP/IP settings and allowed for correct ping responses.

Support for DHCP should be included in future releases of OS/2 Warp Connect, such as Merlin, since requiring a separate installation procedure to load a FixPak or Server system presents users with an unnecessary hurdle.

OS/2

Acknowledgments

Special thanks to Gary Hunt of IBM-Austin's Warp Server Group for his assistance in this project.

Kirk Demaree is lab manager and Mike Robbins is LAN administrator for Beach Labs, a division of Indianapolis, Ind.-based Unitel. Contact them via the Internet at kdemaree@beachlabs.org or mrobbins@beachlabs.org, respectively.

**Can Your
Client/Server Test Tool
Tackle The Entire Testing Process?**
Business workflow ... Extended user ... Load ...
Multi-user ... Concurrency ... Stress ... Integration ...

If you don't test your systems the way they're going to be used in actual operation, you may end up with systems that your business can't rely on.

Softbridge's **Automated Test Facility** has a unique architecture that takes testing beyond the realm of GUI "button pushing", on into the types of testing that ensures your applications can withstand the conditions they'll face in the "real world".

ATF tests applications under
Windows NT, Windows 95, Windows and OS/2.

For information on how ATF can help tackle
the client/server testing process, contact:

Softbridge, Inc.
125 CambridgePark Drive
Cambridge, MA 02140
Phone: 617-576-2257
Fax: 617-864-7747
E-mail: market@sbridge.com
www.sbridge.com



**Why does this publication
and 1600 others open their
books?**

Every year?

Believe it or not, some publications actually keep their subscribers undercover. They steadfastly refuse to let BPA International or any other independent, not-for-profit organization audit their circulation records. Who's to say their circulation is what they claim?

On the other hand, 1600 publications -- including this one -- are members of BPA International. Every year BPA International auditors scrutinize our circulation records and verify the number of our subscribers, their geographic distribution and other important information such as business and occupational data.

Our annual BPA audit helps advertisers determine if they are reaching the right people with their products' messages.

But more important, a BPA audit helps you, the subscriber. Because the more advertisers know about our circulation, the better they can provide you with information that meets your needs. Similarly, the more we know, the better able we are to give you targeted news and information.

BPA International: the proven leader in circulation marketing intelligence for business and consumer media.

270 Madison Avenue, New York, NY 10016-0699.
(212) 779-3200; fax (212) 779-3615.



Indelible Blue

**Outfitters
For The
Information
Frontier**



1-800-776-8284
<http://www.indelible-blue.com/ib>
 For the latest OS/2 gear, call for our new catalog!



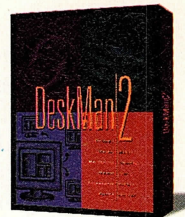
**Outfitters for the
Information
Frontier**

OS/2 and IBM are registered trademarks of IBM Corporation. "Outfitters for the Information Frontier" is a trademark of Indelible Blue, Inc. All other registered trademarks belong to their respective owners. Prices subject to change.

Deskman/2 v2.0

by Development Technologies

Deskman/2 2.0 is the next generation of DevTech's award-winning desktop management suite. The release incorporates powerful new features such as the MultiDesk™ Personal Desktop Facility, user defined Workspaces, live desktop synchronization and more, all seamlessly integrated into OS/2. Deskman/2 2.0 continues to provide OS/2 with the most powerful flexible and easy to use environment.



Call For Pricing!

TAXDOLLARS 1996

by BT&T Consumer Technology

"Dollar for dollar, you have the best value in the industry-Bar none. My money was well spent on your product..." Peter Jennings-1996. Visit <http://www.electricty.com/bttech> or call 1-714-363-7185 for more information. Break the circle to join the current users by ordering at 1-800-OS2-TAXDollars (7 days/24 hrs) or call Indelible Blue at 1-800-776-8284.

BTT10

MSRP \$19.95

\$15.00

dbfREXX & dbfLIB

by dSoft Development

New! Version 3

dbfREXX v3:

Simple, affordable database management for OS/2 REXX programs. Now supports stem variables for direct data access. dBASE file management has never been easier.

DSF26

MSRP \$129.00

\$109.00

dbfLIB v3:

Now your C/C++ programs can access dBASE files! dbfLIB provides a consistent set of API's across OS/2, DOS, Windows, Windows NT and Windows 95.

DSF23

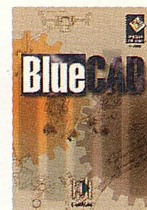
MSRP \$195.00

\$159.00

BlueCAD

by CadWare

The power of 32-bit computing has finally been merged with sophisticated drafting tools to bring you an exciting new CAD solution: BlueCAD. Designed and developed specifically for professional users and students, BlueCAD's speed, flexibility, and customization, make it much more than just a drafting tool.



CAD10 v1.0

MSRP \$199.00

\$185.00

CAD20 Student Edition

\$99.00

Remote Services Management™ PolyPM/2

by International Software Solutions

Remote Services Management allows an OS/2 "Manager" workstation to take control of an OS/2, DOS, Windows 3.1, 95, or NT "Client" workstation across a modem, LAN or WAN. Used for Help Desks, Remote Server Support, Electronic Software Distribution (ESD) and Automated Data Collection (ADC)

ISS50 Lite Edition

MSRP \$199.00

\$165.00

OS/2 Warp v4

Now dictate a memo and navigate the Internet hands-free by simply talking. Run popular applications, including Java programs from the Internet or your company Intranet. OS/2 Warp provides a clear path to a connected world. You can link to colleagues, and set up peer-to-peer networks and tap into a variety of servers from work, home or on the road.

84H1426 OS/2 Warp v4

MSRP \$249.00

\$185.00

84H1429 Upgrade

MSRP \$149.00

\$115.00

ASK ABOUT IBM'S SOFTWARE EQUITY REBATE PROGRAM!

Reader Service No. 15

Multimedia Meets REXX

Lights! Cameras! Action! CMD! By Linden deCarmo

The dearth of information available on REXX multimedia programming is shocking. While the documentation that ships with OS/2 is adequate for developing basic multimedia programs, you will soon discover huge information gaps regarding OS/2's advanced video and audio capabilities. To fill these holes in the documentation, we will explore the advanced features available for multimedia REXX with examples on how to use the clipboard, perform digital CD streaming, and control the multimedia setup application.

Before we delve into the technical details of multimedia programming, let's review the string interface and how it works with REXX. The string interface is the technique OS/2 uses to convert English statements, or strings, into multimedia commands for your sound card, CD-ROM drive, or display. Starting with OS/2 2.1, IBM began shipping *mciaapi.dll*, the dynamic link library (DLL) that gives REXX access to the string interface. (If you're interested in learning more about the string interface, look at "Performance Tuning OS/2 Digital Audio Applications" in *OS/2 Developer*, May/June 1994, or Chapter 15 of *OS/2 Warp Unleashed* [David Moskowitz, David Kerr et al., SAMS Publishing, 1995, ISBN# 0-672-30545-3].)

Besides having a familiarity with the string interface, you need to know how multimedia devices work. Each multimedia driver consists of one or more DLLs. These DLLs interface with sound, video, and CD-ROM hardware on the user's behalf, thereby allowing programs to run on a wide variety of machines. To gain access to these multimedia drivers, you need to perform the steps shown in Listing 1.

Multimedia clipboard

Let's explore one of the more mysterious aspects of the multimedia API: using the clipboard functions Cut, Copy, and Paste. Inexperienced programmers often assume that the clipboard APIs don't work with REXX. They do, but, to get the clipboard routines to work, you need to ensure that your application has access to a message queue. One way to access the queue is by running your program from within PMREXX.

By the way, unlike C or C++, REXX is weak at manipulating individual bits. Therefore, you will not be able to write Digital Signal Processing (DSP) routines in REXX, because these audio-processing algorithms require control over individual bits. Fortunately, you can use OS/2's built-in DSP routines to address this problem. For example, if you wish to change the sampling rate of a file (the sampling rate is the quantity of information that the wave device captures every second that it records), you can Copy the original data into the clipboard, create a new file with the modified sampling rate, and then use Paste (with the Convert option) to automatically convert the sampling rate (Listing 2).

Audio and video control

Each media driver in OS/2 contains one or more connectors that let data move into and out of the driver. For example, the CD device has a streaming connector where digital audio data can flow from the driver (Listing 3). The CD driver reads digital audio directly from the CD-ROM drive and routes this data through the streaming connector to the ampmixer. The ampmixer then feeds the audio through its speakers connector so you can hear it.

Besides the speakers connector, the ampmixer lets you control the audio source for recording through the microphone and line-in connectors. To record from the microphone, you need to enable the microphone connector, for example. To record from the CD (or any other device

Listing 1: How to initialize multimedia in REXX and open the wave driver.

```
/* Ensure that the MCI API and multimedia support
   is initialized */
rc = RXFUNCADD('mcirxinit', 'MCI API',
               'mcirxinit')
InitRC = mcirxinit()
/* Open the wave driver */
rc = mcirxsendstring('open waveaudio alias
                    opentest shareable wait', 'Retst', '0', '0')
rc = mcirxsendstring('close opentest wait',
                    'Retst', '0', '0')
```


Listing 2: Clipboard conversion example.

```
rc = RXFUNCADD('mciRxInit','MCI API','mciRxInit')
InitRC = mciRxInit()
/* Open the wave driver with a known 8-bit wave file */
rc = mciRxSendString("open d:\mmos2\sounds\laser.wav alias_
clipboard shareable wait", 'Retst', '0', '0')
rc = mciRxSendString("copy clipboard wait", 'Retst', '0', '0')
/* Check to see if an error happened */
if rc <> 0 then
do
/* most likely the error happened because there is no message_
queue */
rc = mciRxGetErrorString(rc, 'Retst')
say 'DSP operation failed because ' Retst
exit
END
/* Create a new file */
rc = mciRxSendString("load clipboard new wait", 'Retst', '0', '0')
/* Make it a 16-bit wave file */
rc = mciRxSendString("set clipboard bitspersample 16 wait", 'Retst',_
'0', '0')
/* The convert option of paste will transform the 8-bit audio file */
/* to 16-bits for us */
rc = mciRxSendString("paste clipboard convert wait", 'Retst',_
'0', '0')
/* Check to see if an error happened */
if rc <> 0 then
do
/* most likely the error happened because there is no message_
queue */
rc = mciRxGetErrorString(rc, 'Retst')
say 'DSP operation failed because ' Retst
exit
END
/* Play the converted wave file */
rc = mciRxSendString("play clipboard wait", 'Retst', '0', '0')
rc = mciRxSendString("close clipboard wait", 'Retst', '0', '0')
```

plugged into the line-in jack of your sound card), you must enable the line-in connector (Listing 4).

Like the CD driver, the wave, digital video, and MIDI devices also have streaming connectors. Unfortunately, these connectors are locked; they cannot be modified under the current release of OS/2, and OS/2 Warp 4.0 will not add this support. Still, because the underlying multimedia architecture of OS/2 supports the enabling and disabling of these connectors, you should carefully monitor future OS/2 releases to see if support for these streaming connectors has been added.

All OS/2 REXX programs can play a wide variety of audio and video formats. As a result, you don't have to write special code to handle Internet (.au), Macintosh (.aif), or Amiga (.iff) audio files. All you need to do is ensure that the audio support for those particular formats has been

installed from the Multimedia Bonus Pack for OS/2 Warp.

While OS/2's video format support isn't as comprehensive as its audio counterpart, the operating system does support the two primary movie formats: Audio/Video Interleaved (.avi) files and the Motion Pictures Expert Group's MPEG files. Because

you don't have to write code to process specific video formats, your REXX programs won't have to be changed if IBM or a third party adds additional video formats in the future. For example, if you install the third-party APCODEC package, your REXX programs will automatically be able to play Windows .avi files.

Share and share alike

In addition to rich format support, multimedia REXX programs have the ability to share devices. Device sharing is a technique OS/2 uses so that multiple applications can have the same audio or CD driver open simultaneously. When this feature is enabled in an application, users can switch between applications without encountering annoying messages such as, "The device is in use by another application—please close the other program and retry." To enable device sharing, your REXX program must have access to a PM message queue and be able to process the MM_MCIPASSDEVICE message. In addition, you should either open the device in shareable mode (via the shareable flag on open) or release the device so that other programs can use it (Listing 5).

Although the ability to share audio hardware is useful, sometimes you might want to prevent other applications from using the device while you perform a critical function (perhaps you're recording and can't afford to have an interruption). In these circumstances, you can use the Acquire command to ensure that your application has exclusive use of the device. The Acquire command

Listing 3: How to enable the digital transfer option of the CD.

```
rc = RXFUNCADD('mciRxInit','MCI API','mciRxInit')
InitRC = mciRxInit()
/* Open the CD driver */
rc = mciRxSendString("open cdaudio alias digitaltransfer wait",_
'Retst', '0', '0')
/* Tell the CD that digital output should go through the streaming_
connector */
rc = mciRxSendString("connector digitaltransfer enable type cd_
stream wait", 'Retst', '0', '0')
/* play the CD through the speakers connector of the amp-mixer */
rc = mciRxSendString("play digitaltransfer to 15000 wait",_
'Retst', '0', '0')
rc = mciRxSendString("close digitaltransfer wait", 'Retst', '0', '0')
```


has two options: Exclusive and Exclusive Instance. The Exclusive option prevents all other applications from using the device until you use the Release command to relinquish control of the driver.

The second alternative, the Exclusive Instance flag, guarantees that you can't lose the device, while still allowing other applications to use the portions of the audio hardware that you are not using (Listing 6). For example, certain audio devices, such as Creative Lab's SoundBlaster 16 or IBM's MWave chipset, can play MIDI files and digital audio files simultaneously. If you are playing a wave file and acquire the device exclusively, no other application can play a MIDI file until you release the wave device. By contrast, if you use the Exclusive Instance flag, you are assured that no one will steal the wave device from you, while other programs can still play MIDI files. As a result, unless you absolutely require complete control of the device, I recommend that your REXX programs acquire the device with the Exclusive Instance flag.

Initialization files

Most applications store setup information in an initialization, or *.ini*, file. Unfortunately, many of these programs have a nasty habit of piling information into the *os2.ini* file and thereby slowing down the Workplace Shell. If your multimedia REXX program needs to save initialization information, you should use the **MMBASE** environment variable to find the directory where multimedia initialization files should be stored (Listing 7).

Although the *mmpm2.ini* file houses all multimedia setup information, it is a mystery to most OS/2 users. This *.ini* file is text-based and sparsely documented, so it is not easy to edit. Fortunately, your REXX programs can manipulate the fields in this *.ini* file via the obscure **SYSINFO** call. For example, you can use **SYSINFO** to determine the total number of multimedia devices installed on a system (Listing 8). This information can be useful if you want your program to give users a choice of multimedia devices, rather than simply using the default device.

Once you've figured out how to harness the *mmpm2.ini* file, you're ready to progress to some more advanced topics. For instance, the digital audio, or wave, device lets you control the sampling rate with the Set command. Although the Set command is primarily used to initialize the sampling rate of a new file, you can use it to create "chipmunk" or other weird effects with existing files (it's like playing a 33 rpm record at 66 rpm). Listing 9 shows how you can dramatically speed up an 8KHz wave file by manipulating the sampling rate.

OS/2 uses a file's sampling rate to determine the number of bytes to skip over when you request a seek operation. This technique is called a time conversion formula since it converts a time unit (such as milliseconds) into a specific number of bytes. Because the majority of digital audio files contain sampling rates of 8,000KHz, 11,025KHz, 22,050KHz, or 44,100KHz, OS/2 uses time conversion routines for these primary sampling rates and no others. Unfortunately, if you obtain audio files from the Internet, you'll discover that many of these files contain

Listing 4: How to manipulate some commonly used connectors.

```
/* Open the wave driver */
rc = mciRxSendString("open waveaudio alias recording wait",
    'Retst', '0', '0')
/* Create a new wave file for recording */
rc = mciRxSendString("load recording new wait", 'Retst', '0', '0')
/* record some audio from the microphone */
say 'recording from the microphone.....'
rc = mciRxSendString("connector recording enable type microphone",
    'Retst', '0', '0')
rc = mciRxSendString("record recording to 15000 wait", 'Retst',
    '0', '0')
say 'playing back recording.....'
rc = mciRxSendString("play recording from 0 wait", 'Retst', '0', '0')
rc = mciRxSendString("seek recording to 0 wait", 'Retst', '0', '0')
/* record some audio from the line in jack (most likely the CD) */
say 'recording from line in.....'
rc = mciRxSendString("connector recording enable type line in",
    'Retst', '0', '0')
rc = mciRxSendString("record recording to 15000 wait", 'Retst',
    '0', '0')
say 'playing back recording.....'
rc = mciRxSendString("play recording from 0 wait", 'Retst', '0', '0')
rc = mciRxSendString("seek recording to 0 wait", 'Retst', '0', '0')
rc = mciRxSendString("close recording wait", 'Retst', '0', '0')
```

Listing 5: How to properly open the device in shareable mode.

```
rc = RXFUNCADD('mciRxInit', 'MCI API', 'mciRxInit')
InitRC = mciRxInit()
/* Open the CD device in shareable mode--other people can use it
    after its open */
rc = mciRxSendString("open cdaudio alias sharetest shareable",
    'Retst', '0', '0')
rc = mciRxSendString("close sharetest wait", 'Retst', '0', '0')
say 'device is open shareable'
/* Open the CD device in exclusive mode--no one can use it until
    we release it */
rc = mciRxSendString("open cdaudio alias sharetest wait",
    'Retst', '0', '0')
/* Release the device so that others can use it. */
say 'device has been opened in exclusive mode'
rc = mciRxSendString("release sharetest wait", 'Retst', '0', '0')
say 'device has been released'
rc = mciRxSendString("close sharetest wait", 'Retst', '0', '0')
```


Listing 6: The Acquire and the Exclusive Instance flag.

```
rc = mciRxSendString("open d:\mmos2\sounds\bbee.mid alias_
midifile shareable wait", 'Retst', '0', '0')
rc = mciRxSendString("play midifile", 'Retst', '0', '0')
rc = mciRxSendString("open d:\mmos2\sounds\laser.wav alias_
acquiretest shareable wait", 'Retst', '0', '0')
/* Since we use the exclusive instance flag, we can still hear the */
/* MIDI file when the wave is playing (NOTE: this command file */
/* requires a driver which supports simultaneous MIDI and PCM such */
/* as the Sound Blaster 16 or pas16 */
rc = mciRxSendString("acquire acquiretest exclusive instance_
wait", 'Retst', '0', '0')
rc = mciRxSendString("play acquiretest from 0 wait", 'Retst', '0', '0')
rc = mciRxSendString("release acquiretest wait", 'Retst', '0', '0')
rc = mciRxSendString("resume midifile wait", 'Retst', '0', '0')
/* the exclusive acquire will prevent others from using the */
/* device while we have the wave file open */
rc = mciRxSendString("acquire acquiretest exclusive wait", 'Retst', '0', '0')
rc = mciRxSendString("play acquiretest from 0 wait", 'Retst', '0', '0')
rc = mciRxSendString("close acquiretest wait", 'Retst', '0', '0')
rc = mciRxSendString("close midifile wait", 'Retst', '0', '0')
```

Listing 7: How to use the MMBASE environment variable to determine where to save and retrieve .ini files.

```
mmhome = value('mmbase', 'OS2ENVIRONMENT')
if mmhome = '' THEN
  say "user doesn't have MMBASE variable defined"
ELSE
  do
    PARSE VALUE mmhome WITH mmhome ';'
    say 'Multimedia ini files should found in ' mmhome
  END
```

Listing 8: How to query the mmpm2.ini file to determine the total number of devices installed and the quantity of each device in the system.

```
rc = mciRxSendString("sysinfo all quantity wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'total drivers installed'
rc = mciRxSendString("sysinfo all name 1 wait", 'Retst', '0', '0')
say 'You have the following devices in your system: '
say Retst
rc = mciRxSendString("sysinfo cdaudio quantity wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'cdaudio drivers installed'
rc = mciRxSendString("sysinfo cdaudio quantity open wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'cdaudio drivers being used'
rc = mciRxSendString("sysinfo waveaudio quantity wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'wave drivers installed'
rc = mciRxSendString("sysinfo cdaudio quantity open wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'wave drivers being used'
rc = mciRxSendString("sysinfo sequencer quantity wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'MIDI drivers installed'
rc = mciRxSendString("sysinfo sequencer quantity open wait", 'Retst', '0', '0')
say 'This machine has ' Retst 'MIDI drivers being used'
```

oddball sampling rates (such as 8,123KHz). While these files will play correctly, you may notice that seeks are inaccurate. This discrepancy occurs because OS/2 is using an incorrect time conversion formula—it picks the formula for the nearest sampling rate with which it is familiar.

Annoying limitations

So far, we've focused on things you can do with REXX. However, some irritating limitations in the string interface can prevent you from accessing certain multimedia capabilities from REXX. The original intention for the string interface was to support all the multimedia APIs available under OS/2. Unfortunately, this goal proved elusive, as certain functions require pointers to be exchanged with the multimedia subsystem. Because you can't convert a pointer into English, these functions are not supported by the string interface or applications that use the string interface (such as REXX).

One of these unsupported features is playlists. Playlists let you place digital audio or MIDI data into a memory buffer and play them directly from the buffer. Because no file input/output is involved, playlists are essential for speed-critical applications. Unfortunately, to set up a playlist, you must pass a pointer to OS/2; thus, you can't use them with REXX.

Another useful feature unavailable in REXX is the file handle shortcut. This performance enhancement lets you open and use an audio, video, or MIDI file outside of the multimedia subsystem and then pass the existing file handle into the multimedia driver. Because the driver doesn't have to reopen the file, a significant improvement in performance is possible.

A third item that isn't fully exploitable under REXX is the SYSINFO command. While the elementary SYSINFO options are available with REXX, almost all of the advanced features are unavailable. For example, deep within the *mmpm2.ini* file are a number of variables that C and C++ programmers can use. One of these variables is the multimedia

workpath; it indicates where all multimedia temporary files should be placed.

The final API that has proven elusive to REXX programmers is the Direct Audio Routines (or DART). DART is a high-performance interface that is used by games, speech engines, and other performance-critical audio applications that cannot afford any system overhead. Unfortunately, this interface is completely dependent on the exchange of input and output pointers and is not accessible from REXX.

Although these limitations are inconvenient, none are as crippling as the fact that REXX programs currently cannot receive multimedia notifications when using **mciRxSendString**. The API that **mciRxSendString** is built upon, **mciSendString**, allows the programmer to attach a window handle with a user parameter on it so that the system can notify a program when a command completes or if an error occurs. Unfortunately, because **mciRxSendString** doesn't allow you to pass window handles, none of these notifications can be received in REXX. As a result, you must use the inefficient technique of polling the system to determine when a command completes instead of receiving a completion message.

Fortunately, the notification situation is not hopeless. In the ill-fated OS/2 for the PowerPC release, IBM added the ability to send multimedia notifications to a DosQueue, in addition to a PM message queue. If you examine the **mciRxSendString** documentation, you'll see that the last two parameters are reserved (presumably for use with notifications). Since every REXX program can use a DosQueue, adding support for notifications via DosQueues to **mciRxSendString** would be a trivial operation. Hopefully, IBM will integrate DosQueue notification with **mciRxSendString** in a future OS/2 release, but as of version 4.0, it has not.

Diamonds in the rough

As we've discovered, a number of gems are hidden under the flimsy REXX multimedia documentation

Listing 9: How to manipulate the sampling rate so that the audio plays extremely fast.

```
rc = mciRxSendString("open d:\mmos2\sounds\laser.wav alias_
sampletest shareable wait", 'Retst', '0', '0')
say "wave file before we change sampling rate"
rc = mciRxSendString("play sampletest from 0 wait",_
'Retst', '0', '0')
say "wave file after we change sampling rate"
/* By setting the sampling rate to 44100, we increase the_
speed of playback */
rc = mciRxSendString("set sampletest samplespersec 44100_
wait", 'Retst', '0', '0')
rc = mciRxSendString("play sampletest from 0 wait",_
'Retst', '0', '0')
rc = mciRxSendString("close sampletest wait", 'Retst',_
'0', '0')
say 'Finished sample manipulation example'
```

included with OS/2 Warp. You can control the multimedia setup application, manipulate data in the clipboard, and even create unusual audio effects. If you are diligent and put all of these pieces together, you can create REXX multimedia masterpieces that will shock those who think that

REXX is limited to plain, boring text output. **OS/2**

Linden deCarmo is a senior software engineer at Oak Technology. He previously worked for IBM on the OS/2 audio team. You can contact him at lindend@ibm.net



A T S

Advanced Task Scheduler for OS/2

Are you looking for a way to manage production job streams? ♦ Do you have programs that need to be started as soon as one or more other programs have ended? ♦ Do you need to process newly arrived or modified files as soon as they are available? ♦ Do you need to alter your scheduling due to holidays or periods of heavy CPU load?

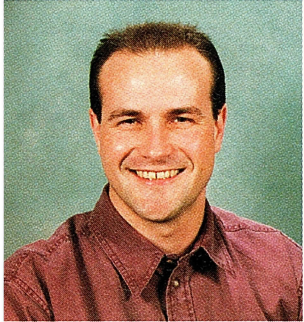
Take
CONTROL
of your OS/2
Task Scheduling
Needs!

Major Features of ATS for OS/2:
 ☺ Manage production job streams.
 ☺ Programs can be scheduled to run any time.
 ☺ Programs can be dependent upon files, other programs, holiday schedules and external signals.
 ☺ Integrated operations console.
 ☺ Logging - to file and console.
 ☺ Job Queues for managing your resources while managing your tasks.
 ☺ Periodic Scheduling.
 ☺ Complete API and Command Line Interface.
 ☺ Restart Capabilities.

With ATS, you can run your programs when YOU want them to run without even being there. Control unattended locations.



Software And Consulting
 2227 U.S. Highway # 1, Suite 146, North Brunswick, NJ 08902
 Voice (908) 821-0359 ♦ Fax (908) 821-0350 ♦ BBS (908) 821-0847 ♦ CompuServe 70312,627



A Picture Perfect Control: The Sequel

BY MARK BENGE AND MATT SMITH

Let's continue our discussion on OS/2 Presentation Manager (PM) frame windows. In October, we covered adding extensions to the title bar's neighborhood. This time, we jump a few pixels due south and add an extension to the menu bar.

Where did we leave that saw?

Yup, the kitties think we should improve our frame. (Mind you, we tried to bribe them with kitty treats, but they've been very finicky lately.)

So we're going to add a few bells and whistles to our frame. Our first area of focus is the menu bar. Adding frame extensions in the area of the menu bar is basically the same as adding extensions in the area of the title bar. The key is that you need to test for the menu bar ID, `FID_MENU`, during the processing of the message, `WM_FORMATFRAME`, in the frame control subclass procedure, `FrameWndProc`. This test is performed by iterating the SWP array via the pointer passed in `mp1`. After the menu bar's entry is found, the processing is almost the same as the processing for the title bar. You might ask, if it's almost the same, then why didn't we discuss it in the last issue? Were we sandbagging it? Nope! We were saving additional concepts that you will discover as you continue your trek through this article.

Last time, we added two frame extensions, both graphic push buttons, to the title bar. Feeling up to a challenge, in this issue, we've added a more complicated extension, a drop-down combo box, to the end of the menu bar. Also, because OS/2 Warp

4.0 includes a close button between the title bar and the minimum and maximum buttons, we removed the close button from the sample code.

Frame frills

As a frame extension, a drop-down combo box presents a positioning dilemma. First, it needs to be positioned so that the entry field portion rests comfortably in relation to the menu bar; the drop-down list box must be given enough space to display its items. We decided to position the combo box at the end of the menu bar for aesthetic reasons. Next, we attempted to position the bottom of the combo box based upon the bottom of the menu bar. The entry field portion of the combo box was positioned and sized properly. However, the drop-down list box portion was barely visible. Humbled, we analyzed the math and discovered that we hadn't taken the size of the drop-down list box into account. Once corrected, the drop-down list portion magically appeared.

Sizing the frame

While playing with the sample code, we were naturally able to resize the window until almost none of it was visible. Since we've gone through all the trouble of adding frame extensions to the frame control, we thought it might be nice for these extensions to remain visible at all times. Therefore, we added code that calculates and sets a minimum size, width, and height, for the window tracking logic.

So when do you calculate and set the minimum size for the window tracking logic? When you process the `WM_QUERYTRACKINFO` message.

According to the online *Presentation Manager Guide and Reference*, `WM_QUERYTRACKINFO` is sent by the frame window to itself when it receives the `WM_TRACKFRAME` message. The frame window sends this message to itself to fill in a `TRACKINFO` structure that defines the tracking parameters and boundaries. To modify the default behavior, an application must subclass the frame window, intercept the `WM_QUERYTRACKINFO` message, and modify the `TRACKINFO` structure. The *Guide and Reference* also states that an application must return `TRUE` for the `WM_QUERYTRACKINFO` message for the tracking operation to proceed, because no tracking occurs if `FALSE` is returned.

`FrameWndProc`'s processing for `WM_QUERYTRACKINFO` immediately calls the old frame window procedure to obtain the default tracking information for the frame control. We calculate and set the minimum tracking width and height per our requirements, as shown in Listing 1. If there are no errors, we return `TRUE` to indicate that the tracking operation should proceed. Otherwise, if there are errors, we return `FALSE`.

We use the title bar, menu bar, and borders to calculate the minimum height. We use the menu bar, combo box, and borders to calculate the minimum width because it meets our needs. However, you can expand this calculation to include the title bar or to introduce other factors to the equation.

The minimum title bar and menu bar heights are saved during the processing of `WM_FORMATFRAME`. The SWP structure for each contains the



Figure 1: Sample at initial size.



Figure 2: Resized per minimal width and height calculations.

height that is required to fully show both controls. As we shall see, the determination of the minimum menu bar width is not as simple.

Was that an 8x10 or a 5x7?

In addition to displaying the drop-down combo box in its entirety, we want to display all of the menu items on the menu bar. The calculation of the minimum menu bar width involves adding the widths of all of the individual items on the menu bar. We have added a new function, **CalcMenuBarMinWidth**, to dynamically calculate the minimum menu bar width required to display all of the menu items. This function iterates the menu items, calculates the individual widths, and returns the sum total (Listing 2). This total represents the minimal width required by the menu bar to display all of the menu items.

We use three messages in the **CalcMenuBarMinWidth** function to calculate the minimum menu bar width: **MM_QUERYITEMCOUNT**, **MM_ITEMIDFROMPOSITION**, and **MM_QUERYITEMRECT**. First, we use **MM_QUERYITEMCOUNT** to obtain the total number of items on the menu bar. Next, we iterate the total number of items and use **MM_ITEMIDFROMPOSITION** to get the item's ID. Finally, we get the item's rectangle via the ID we obtained in the prior step and use it to calculate the item's width, adding it to the widths of the other items we've processed. When finished, we return the sum total to the **WM_QUERYTRACKINFO** processing.

The end result is a frame that resizes only as small as it possibly can without clipping the title bar and menu bar in the vertical plane or the

menu items and drop-down combo box in the horizontal plane. As the saying goes, a picture's worth a thousand words. Therefore, we've included

Listing 1: Minimum tracking width and height.

```
pTrackInfo->ptlMinTrackSize.x = COMBO_WIDTH_HEIGHT + J
    LMinMenuBarWidth + (WinQuerySysValue( HWND_DESKTOP, J
        SV_CXSIZEBORDER ) * 2);

pTrackInfo->ptlMinTrackSize.y = LMinTitleHeight + LMinMenuHeightJ
    + (WinQuerySysValue( HWND_DESKTOP, SV_CYSIZEBORDER ) * 2);
```

Listing 2: CalcMenuBarMinWidth function.

```
LONG CalcMenuBarMinWidth( HWND hWnd )
{
    RECTL rect;
    LONG i;
    LONG LMinWidth = 0;
    HWND hwndMenuBar = WinWindowFromID( hWnd, FID_MENU );
    /* Get the count of the menu items on the menu bar. */
    LONG LMenuItemsCount = (LONG)WinSendMsg( hwndMenuBar, J
        MM_QUERYITEMCOUNT, 0, 0 );
    for ( i=0; i < LMenuItemsCount; i++ )
    {
        /* Get the id of the menu item. */
        LONG itemID = (LONG)WinSendMsg( hwndMenuBar, J
            MM_ITEMIDFROMPOSITION, MPFROMLONG( i ), 0 );
        if ( itemID == MIT_ERROR )
            return( MIT_ERROR );
        /* Get the rectangle for the menu item. */
        if ( WinSendMsg( hwndMenuBar, MM_QUERYITEMRECT, J
            MPFROM2SHORT((SHORT)itemID, 0), MPFROMP(&rect) ) )
        {
            /* Calculate the item's width and add it to the width */
            /* of the other items. */
            LMinWidth += (rect.xRight - rect.xLeft);
        }
        else
            return( MIT_ERROR );
    }
    return( LMinWidth );
}
```


Tales from the Trenches

During the population of the drop-down combo box, we discovered a bug in our attempt to use the message, **LM_INSERTMULTITEMS**. Apparently, this message has not been enabled for the combo box control. Therefore, we reverted to a method that we knew would work: doing the insertion via **LM_INSERTITEM** within the confines of a **for** loop.

Figure 1 to show how the sample appears when it is started and Figure 2 to show how it appears when it has been resized based on our minimal width and height calculations.

Lest we forget, **CalcMenuBarMin-Width** is designed to let you modify your menu-related resources and will automatically perform the minimal width calculations based upon the new menu information.

Stain and varnish?

Now our frame is more visually appealing to the kitties. We'll wrap up our series next month by applying the stain and varnish. The final episode of "A Picture-Perfect Control." **OS/2**

Acknowledgments

Kudos to Mike Walker of the PMWIN development group, IBM PSP, and Hiroshi Tsuji of the Open Class development group, IBM SWS, for their suggestions and assistance in the development this article.

Mark Bengé is a staff programmer who joined IBM in 1989 and has recently been a member of the Open Class development team for VisualAge for C++ for OS/2 and Windows. He currently develops LAN-based systems management code. Mark has a B.S. in computer science from Western Carolina University and can be reached at banzai@raleigh.ibm.com.

Matt Smith, Prominare Inc., Toronto, Ont., is lead architect for Prominare Designer and Prominare Validator as well as the IBM Universal Resource Editor. Involved with OS/2 since 1988, he has a degree in architecture from the University of Waterloo and can be reached at msmith@prominare.com.

Resources:

You can download *framctl2.exe* from these electronic sources:

CompuServe's OS2AVEN forum (OS/2 Magazine Section).

File area 11 on the IBM PCC BBS, (919) 517-0001, OS/2 Tools section on the OS/2 BBS for IBM TALKLink customers.

FTP to *prominare.com* and log in as anonymous. The source is located in the */pub/prominare/guicornercodecache* subdirectory.

Visit the GUI Corner home page at www.prominare.com/prominare/os2mag.vol3num1.html.

Now Get In Charge!

In Charge! is a full function personal and small business finance system for OS/2.

In Charge! supports:

- Multiple sets of financial books
- All types of accounts, from checking to stock margin
- Multiple currencies
- Securities portfolio management
- Powerful check printing facility
- CheckFree electronic bill payment
- Graphical reports
- Special small business functions

And much more!

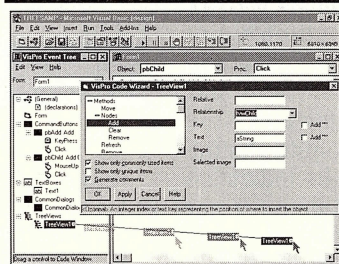


In Charge! is available through dealers, or directly from Spitfire Software for only

\$79 + Shipping

(404) 257-0187 • Fax: (404) 255-8032

Visual Basic Just Got More Visual



VisPro® for Visual Basic gives you drag-and-drop programming and more

"When HockWare created VisPro... the company created a whole new dimension to the concept of drag-and-drop..."

Nicholas Petrely, InfoWorld 11/16/95

Now, Visual Basic programmers can take advantage of the same VisPro family productivity other programmers have enjoyed for years. Fully integrated with Visual Basic 4.0, VisPro for Visual Basic helps you create programs faster than you ever thought possible.

Drag and Drop Nirvana

Drag and drop programming provides a faster, easier way to write code. Drag a control to a Code window and a VisPro Code Wizard lists all the methods and properties for that control.

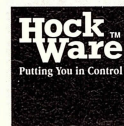
Point and Click, not Hunt and Peck

Click on the method or property you want to call. A description and lists of valid parameters appear. Point and click to set parameters and commented code is typed in before your eyes!

Enjoy the Views

The VisPro Event Tree displays controls and their events in an Explorer-like tree. Click on an event icon and the Code window displays that event. The VisPro Event Map presents a schematic diagram of a form. Arrows appear between controls, representing properties and methods that are accessed by event code. 'Fly-overs' show details about those methods and properties. Using pop-ups, you can view related event code. The VisPro List View, Alignment palette and other wizards round out a powerhouse of productivity enhancements.

Come see how VisPro for Visual Basic just made Visual Basic more visual.



HockWare Incorporated

PO Box 336 / Cary, NC 27512-0336
919 • 380 • 0616 / FAX: 919 • 380 • 0757
<http://www.vispro.com>



VisPro is a registered trademark of HockWare, Inc. All other company, product and/or brand names are trademarks of their respective holders and are mentioned for reference purposes only. © HockWare Incorporated. All rights reserved.

"I Make My Own Choices"

**Unique.....Original....
Eccentric...Unconventional.**

Sure, that's me. I take pride in my ability to see past conventional wisdom and make my own decisions.

I know the difference between hype and performance. I make my decisions based on fact, not promises and speculation.

Understanding and using computer technology is what I do every day. It's not just a hobby, but it's not my entire life, either.

I'm more than that.

My computer is a reflection of me and how I choose to work.

I want a personal computer system that works the way I do. It has to keep up even when I'm doing a dozen tasks simultaneously.

Those other guys can follow the crowd and settle for mediocrity.

I like being one step ahead.

I choose to have.....

- Speech recognition capabilities
- An Internet-aware desktop, plus the new OS/2 WarpCenter
- A universal network client with unmatched connectivity
- Exceptional systems management, including DMI support
- DOS, Windows, OS/2 and Java™ applications
- Broad compatibility, plus TrueType, OpenGL™, OpenDoc for OS/2, Open32, and Plug and Play
- A free OS/2 Warp 4 version of Netscape Navigator to download

I choose OS/2 Warp 4!

The Choice Of The Thinking Generation!

84H1426	OS/2 Warp v4	MSRP \$249.00	\$185.00
84H1429	Upgrade	MSRP \$149.00	\$115.00

ASK ABOUT IBM'S SOFTWARE EQUITY REBATE PROGRAM!

1-800-776-8284

<http://www.indelible-blue.com/ib>

For the latest OS/2 gear, call for our new catalog!



OS/2 and IBM are registered trademarks of IBM Corporation. "Outfitters for the Information Frontier" is a trademark of Indelible Blue, Inc. All other registered trademarks belong to their respective owners. Prices subject to change.

Reader Service No. 19

Anti Work

ANTIVIRUS 2.5 AND COLORWORKS 2.0

BY BRIAN PROFFIT

AntiVirus 2.5

Since the last time we looked at IBM AntiVirus/2 (December 1994, pp. 22-24), a lot has changed—both in the product and in the world of viruses. Virus authors are more creative, finding ways to insert them into application macros in addition to executable programs. We've become more susceptible to viruses, too, through our sweeping adoption of the Internet (as demonstrated by the Hare virus which spread through the Internet and erased data on numerous systems on August 22).

IBM keeps up

AntiVirus has changed quite a bit, too. Version 2.5 can detect literally thousands more viruses, the total surpassing 8,000. The "generic disinfection" option detects viruses that are mutations of known viruses. It has a user interface. Now, that may seem like a strange comment, but when I last reviewed it, the utility had nothing that I would have dignified with the term "interface." It can detect macro viruses, including the Concept virus for Word macros. It can automatically decompress archives created with PKZIP, ZIP, or LZEXE (make sure you have the available space for the decompressed files!) and check the contents for viruses.

Another new feature is the ability to "check files when accessed." This feature checks every file for common viruses whenever the file is opened or closed and

automatically scans for viruses in downloaded software as soon as the download is complete. A great idea, but IBM chose to implement it only in the non-OS/2 versions. You can, of course, do a manual virus check when you download files, but that's less convenient. Still, IBM says that there are no OS/2 viruses that require this level of shielding, and the OS/2 version does include the DOS AntiVirus programs. Therefore, downloaded viruses should be detected when you start a DOS or Win-OS/2 session and try to open a problem file.

Performance has been improved, too, even though many more viruses are being sought. AntiVirus checked 2,751 files on two partitions (one FAT, one HPFS) in 2:08 on a 24MB Pentium 100. Those were the files that met the default criteria; file extensions of *.bat*, *.bin*, *.cmd*, *.com*, *.dll*, *.doc*, *.dos*, *.dot*, *.exe*, *.os2*, *.ov?*, *.prg*, *.smm*, and *.sys*.

Broad, configurable coverage

The Desktop Edition includes the OS/2 Warp, Windows 95, Windows

3.x, and DOS versions of AntiVirus, which is quite handy for those who use Dual Boot or Boot Manager, because each operating system must have AntiVirus installed separately. (Note, though, that the OS/2 version includes programs to protect DOS sessions opened within OS/2.) It also includes a bootable "Emergency Diskette," in case a virus renders your system unstartable. The disk contains a minimal DOS 7.0 system and the AntiVirus stand-alone program.

By default, AntiVirus runs at 3:00 a.m. Monday mornings but can be configured to run daily or monthly at any time, or every time the system is booted. The scan takes place in the background, so your normal work can proceed without disruption. Floppy disks in the system can be checked automatically at system shutdown, which is helpful because, if an infected disk is left in the drive, it will assume control when the computer is restarted. An excellent log is generated, which you can check for results of those automated scans.

Glee or flee

The online help is an excellent reference for viruses and their symptoms. However, you may never need it, since AntiVirus 2.5 does an excellent job of disinfecting systems whenever possible. You get all of these new features and a \$10 decrease in price with no fee for monthly updates to the virus signature file!

No one is immune to viruses, and IBM AntiVirus (in

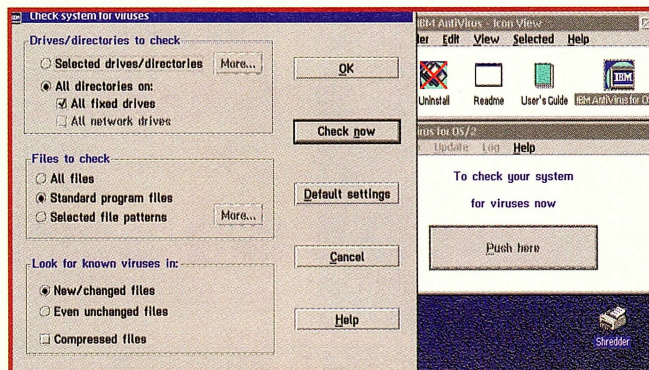


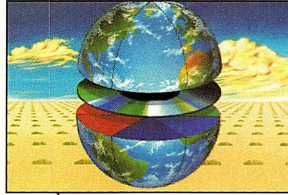
Figure 1: IBM AntiVirus 2.5 is broadly configurable.

JBA Guidelines®

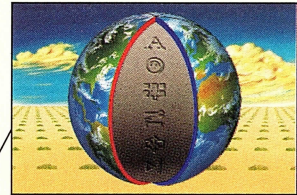
Build tomorrow's business applications today.

Database Connectivity

Access to simultaneous, multiple databases is transparent through JOT. Supported databases include: DB2, DB2/2, DB2/400, DB2/6000, Oracle, Lotus Notes Server, and 20 more through native ODBC.



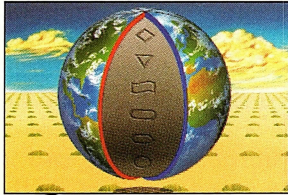
Graphical User Interface



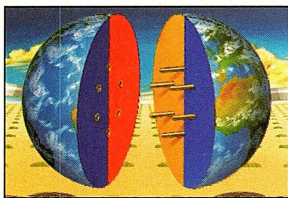
An intuitive and natural interface for the direct manipulation of on-screen design for OS/2 and Windows, with over 30 powerful controls for the professional developer. Includes all the standard controls plus Gauge, Button Bar, Grid and Graph.

Logic, Language, and Compiler

A platform-independent high-level language, JOT combines the RAD features of a 4GL with the generation of native code (C++ and RPG) for the Client AND Server. Existing legacy 3GL code can be directly interfaced. And CORBA-compliant objects can replace logic at any time in the future.



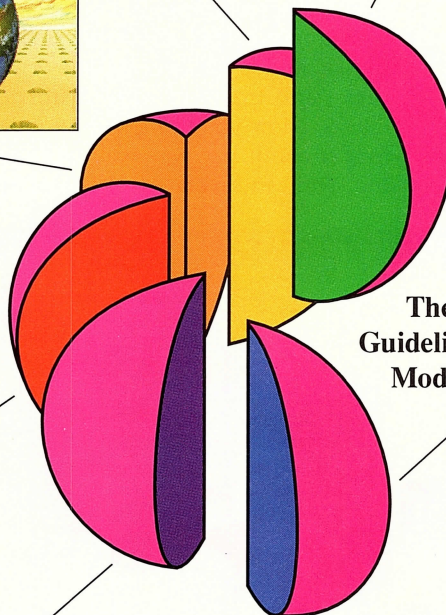
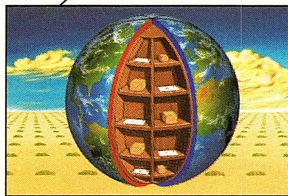
Network Connectivity



By mixing the connectivity components as required, applications can be built as thin clients, thick client/server with application partitioning, and fully distributed Object-Oriented. Supported hosts are: OS/2, AS/400, UNIX, MVS.

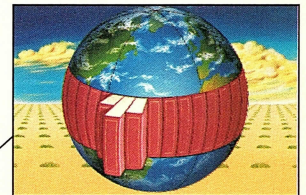
Object Messaging

The Message layer is fully compatible with all current Object Request Broker (ORB) standards. JOT verbs provide a single interface to current technology and the OO of tomorrow. Guidelines provides CORBA IDL and IBM SOM support.



The
Guidelines®
Model

The Repository



The repository supports and surrounds the entire programming environment with the facilities for teamwork development. Databases can be created on multiple hosts from a single definition. Data definitions can be directly imported into a GUI program.

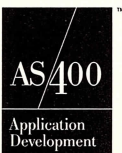
Creating true Object-Oriented applications *used* to require a significant change in skills and in your mindset. However, with JBA Guidelines, you can build green-on-black or event-driven graphical applications *today*, with minimal retraining, and easily create CORBA industry-standard objects.

And it's not all or nothing. You can now control your evolution to the Object-Oriented world.

Guidelines is available in option packs to serve the needs of single PC developers right up to enterprise-wide development teams.

Call for an evaluation CD-ROM.

Build tomorrow's business applications today – only with JBA Guidelines.



All trademarks are the property of their respective owners.

JBA International
1-800-JBA-INTL
Fax: 609-439-9652
In Europe: (44) 1527-496200
<http://www.JBA.co.uk>
CompuServe: Go Guidelines



conjunction with those regular backups you all do) is an excellent way to detect and remove them as painlessly as possible.

ColorWorks 2.0

This business is really fascinating. Certainly, it's seldom boring. Only three days after I'd sent off last month's story on JView Pro and all of its power at a reasonable price, I got a call from SPG telling me that ColorWorks 2.0 had just undergone a major price reduction, making "The Artist's Ultimate Power Program" now a price leader as well. Naturally, I had to take a look for myself.

The professional power of workstations

ColorWorks 2.0 brings a level of artistic power to the desktop that is more commonly associated with dedicated workstations from Sun Microsystems or Silicon Graphics. This 32-bit graphics program has both paint and image-processing/editing functions. It takes advantage of multiple OS/2 threads to provide unprecedented performance in a desktop system. Even during an extensive editing operation, the user thread stays in the foreground, so you can keep right on working. Of course, you can configure ColorWorks to give the redrawing thread higher priority. In fact, if you're working with a large enough image (which will slow draw operations) you can monitor the drawing queue and modify the priority, pause, or even delete redraw threads dynamically. Even greater power can be obtained on multiprocessor systems, because ColorWorks includes optimizations that allow it to exploit the additional processors.

ColorWorks is also enabled for use with pressure-sensitive input devices, such as drawing tablets. The harder you press the stylus, the wider and more opaque the painted image. In ColorWorks paint mode, the stylus feels much more like an artist's tool than the mouse does.

There are so many possibilities in

ColorWorks that I can't mention them all here. For example, the number of photo retouching effects is huge. The Tune Image Color menu alone has a selection of options including Adjust Color Maps, Gamma Correction, Color Balance, Advanced Color Balance, Tonal Compression, Brightness/Contrast, Dodge/Burn, Adjust Histogram, Hue/Saturation, Posterize, Solarize, Threshold, Invert, Gray Conversion, Noise, and JPEG Cleaner (to smooth some of the tiling that can occur from lossy JPEG compression). Dozens of filtering effects are included as well, plus the ability to define your own custom filter.

Numerous special effects, such as mosaic and crystallize, dozens of textures, and freeform warp/distortion effects, allow you to modify an image in just about any way you can imagine. You can save a set of effects and

SPG also includes an interface for other developers to write routines for image acquisition (such as scanning and screen capture), export (such as additional file formats), and graphics effects.

In the review of JView Pro last month, I mentioned the "magic" option for fill operations. Rather than determining the outer borders of the fill based on a single color, the magic option applies intelligence to determine more accurately where the boundaries should be, such as allowing for multiple shades of blue in a sky. The magic wand is becoming more widespread in graphics programs and ColorWorks gives the user even more control over the intelligence used in all magic operations, which can include fill, erase, or even special effects.

I especially like the ability to create a protection mask. Just as a watercolor painter may paint a rubberized substance (which can later be peeled off) over white areas to protect them from paint and keep them white, ColorWorks allows you to mask areas so they aren't affected by draw, fill, or effects operations. You can also define protection masks based on protecting certain colors or ranges of color, instead of a bounded physical region.

Speaking of masking, ColorWorks makes precise image merging possible through its floating masks.

Suppose you want to superimpose one image onto part of another. You can open both images ("canvases" in ColorWorks-speak), draw a mask where you want the image to be superimposed, then float that mask over to the other image and position it so you grab the precise portions you want to copy. Then drag and drop that portion back onto the other canvas.

Hardware requirements

When working on large images, you may want to take advantage of ColorWorks' Dynamic In-Memory Image Compression (DIMIC) technology. DIMIC can decrease the amount of

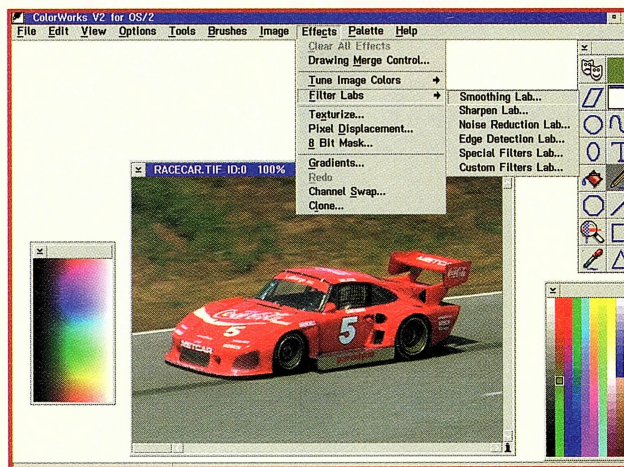
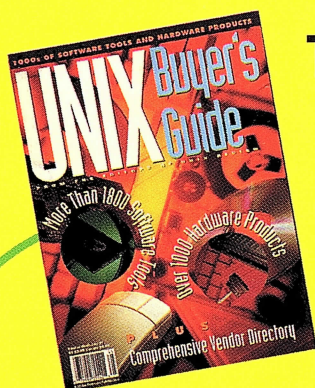


Figure 2: ColorWorks has a wide range of image manipulation options.

settings that you particularly like, creating your own customized plug-in effects. This feature applies to the incredibly flexible Coons Warp as well. If you're not familiar with it, Coons Warp establishes four controls around the boundary of an image and lets you manipulate points on those controls. As you do so, the image is warped in the opposite direction from your movements. Sounds strange (and takes some practice to get used to), but it allows some really great effects. Several predefined Coons Warps are included (such as making an image appear as if it was wrapped around a cylinder), and you can save and reuse your own custom warps.

NEW!
UNIX Expo Preview

What single source
has more Servers than
the French Open, more
BASICS than elementary
school, more RISCs than
the Stock market, and
more CASEs than the
Supreme Court
?



The UNIX Buyer's Guide.

Now available on the world wide
web, complete with thousands of
product listings, and a free-text
and fielded search engine.

<http://www.unixreview.com>

Test Drives

main memory required for image processing by as much as 90% (in optional lossy mode). This technology can save dozens of megabytes of *swapper.dat* space, and save time from reduced swapping. Because of the processing required for compression/decompression, though, you should at least have a Pentium 100 before using DIMIC.

SPG recommends that you have a 24-bit (true-color) local bus video adapter with at least 2MB of video RAM, but that isn't a requirement. Even if your video system is unable to display it, ColorWorks maintains all images internally as 24-bit, keeping a separate lower-color version for display purposes. In other words, even if you're running in 64K-color mode (or less, although it's hard to imagine that someone who wants to use ColorWorks would use less than 64K colors), you can open, edit, and save 16.7 million color images with no loss of quality. In fact, ColorWorks actually seems to perform a little worse on systems in 256-color mode

due to the amount of color remapping required between the internal 24-bit image and the 8-bit display rendering.

User interface

I have to mention the unique packaging. ColorWorks 2.0 is sold as a thick hardback book with a CD-ROM in the back cover. It is filled with full-color screen captures that clearly illustrate the product's function. It isn't just attractive; it's useful. The book is divided into a learning section, which is more of a how-to on basic ColorWorks skill; a tools reference, which gives you specific details on each of the entries in the tools palette; and a menu reference, which provides information on each of the menu items.

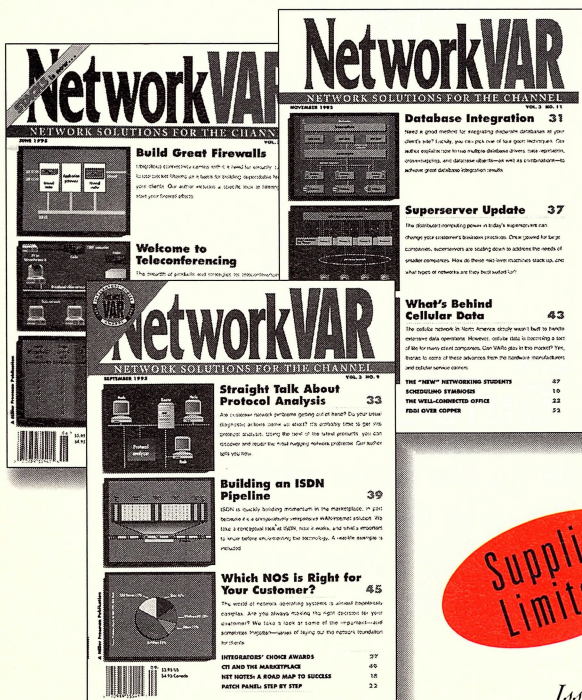
Still, it's easier to learn the product hands-on, and several online technique lessons are included to aid that process. As a special benefit, SPG offers many more technique lessons on its Web site. These lessons take you step-by-step through the creation

of complex images, illustrating the power of ColorWorks in the process. New lessons appear periodically, as an additional resource that's free for the user.

The number of options available in ColorWorks brings great power, but can also cause some confusion when first learning the program. The technique demonstrations included are quite helpful, but some confusion is bound to occur when the Edit menu includes such entries as Save and Float Image Mask, Float Saved Image Mask, Discard Float, Paste Floating, Float Merge Control, Undo/Redo Mask, Show Float, Save Mask, and Mask Edit Options.

In Free Draw mode, the pointer remains a pencil point, whatever brush size is selected. Thus, predicting exactly where the painted area is impossible. Admittedly, with the range of brush sizes, textures, and opacity levels, it's difficult to make the pointer an exact match for the area affected. But even a hollow circle, for example, showing the largest area

Did You Miss These?



Back Issues

To order your back issues of
Network VAR, call now:

800-250-2429

or write to:

Network VAR, P.O. Box 1125
Skokie, IL 60076-8125

Issues are \$7. All orders must be prepaid. Foreign orders add \$2 per copy.

Test Drives

affected—even if the edges may be softly blended when the drawing actually takes place—is more helpful than a single point.

Each of the tools, from freehand drawing to polygons to spline curves, can be used for applying color or effects. In fact, multiple effects can be combined with a color and applied simultaneously with a single tool. When selecting colors, the continuous-tone palette is much easier to use than selecting and editing colors from a limited palette. As you move the pointer over it, the title bar changes color to show the precise shade being selected.

This clearly professional graphics program lets you control the creation of CMYK image separations for professional printing. ColorWorks can even do a creditable job of recreating an image from its CMYK components, although it's difficult to bring back the image exactly. In addition, ColorWorks supports BMP, EPS, GIF, IFF, JPEG, PhotoCD, PCX, PICT, RAS, Targa, and TIFF formats.

Glee or flee

A highly functional package, ColorWorks 2.0 offers a range of options to the professional graphic artist. The reason it's available at this price (quite low for such a professional package) is that SPG has already announced that upcoming release of version 3.0, scheduled for the first quarter of 1997. While declining to announce pricing in advance, SPG did say that an attractive upgrade price from version 2.0 to 3.0 will make it less expensive to buy version 2.0 now and upgrade later, than to wait and purchase 3.0.

The more casual user, however, may be overwhelmed by the range and complexity of ColorWorks. I don't mean to make it sound difficult to use, but there are so many possible techniques and combinations that it can take a while to figure out exactly how to accomplish what you want. Graphic artists and the like will love all the power in this package, but less serious users may prefer products that are directed toward their less demanding needs.

OS/2

Brian Proffitt left IBM's OS/2 team to become director of PC Week's Corporate Labs. Now president of Visionary Research, senior contributing editor for OS/2 Magazine, and solutions advisor to PC Magazine, he can be reached at 75300.1466@compuserve.com.

Resources:

IBM AntiVirus 2.5
(Desktop Edition, single license, \$49; Enterprise Edition for Networks, 25 user licenses, \$620)

IBM AntiVirus Products
(800) 742-2493
Outside U.S. (512) 434-1554
Fax (512) 434-1536
E-mail IBM_AntiVirus@harte-hanks.com
WWW <http://www.av.ibm.com>
CompuServe: GO NCSAVirus, section 19

ColorWorks (\$169)

SPG
(305) 362-6602
WWW <http://www.spg-net.com>
READER SERVICE NO. 116

The "Fast 5," our popular configurations Indelible Blue's Einstein Series FAST 5 -- Complete systems ready to go out of the box!

	ARCHIMEDES DESKTOP	GALILEO MID-TOWER	PYTHAGORAS TOWER	HEISENBERG SMP TOWER	MAXWELL NOTEBOOK
CPU	Intel 100 or 133	Intel 150	Intel 166	DUAL Intel 133/150/166	Intel P-100
Cache	256k Async	256k Pipeline	512k Pipeline	256k Pipeline	256k L2
HDD	1.6 gig Western Digital	1.6 gig WD	1.6 gig WD	1.6 gig WD	810mb
MEMORY	16mb EDO	32mb EDO	32mb EDO	32mb (x36 parity)	16mb
CD-ROM	8X CD-ROM	8X CD-ROM	8X CD-ROM	8X CD-ROM	4x CD-ROM
Sound	16bit SB Compatible	16bit SB Comp	16bit SB Comp	N/A	ESS-688
Speakers	10 watt Speakers	10 watt Speakers	10 watt Speakers	N/A	Built in Stereo
Video	2mb S3 Trio PCI	2mb S3 Trio PCI 2mb S3	Trio PCI 4mb	ATI PCI Video	PCI 800x600
Fax	33.3 Data/Fax Modem	33.3 Data/Fax	33.3 Data/Fax	33.3 Data/Fax	28.8 PCMCIA
FDD	3.5" 1.44	3.5" 1.44	3.5" 1.44	3.5" 1.44	3.5" 1.44
Slots	3-PCI / 3-ISA, 1 shared	3-PCI / 3-ISA, 1s	3-PCI / 3-ISA, 1s	3-PCI / 3-ISA, 1 shared	2 PCMCIA
Tape Backup	NONE	850mb w/1 tape	850mb w/1 tape	850mb w/1 tape	NONE
Keyboard	104 key	104 key	104 key	104 key	85 key
Mouse	PS/2 Style	PS/2 Style	PS/2 Style	PS/2 Style	Touchpad
Case	Desktop	MID-TOWER	TOWER	TOWER	NOTEBOOK
OS	OS/2 Warp Connect	Warp Connect	Warp Connect	OS/2 SMP 2.11	Warp Connect
Warranty	1 year onsite	1 year onsite	1 year onsite	1 year onsite	1 yr express
Monitor	CTX 14" .28	CTX 15" .28	CTX 15" .28	CTX 15" .28	10.4" Active LCD
PRICE	P-100 \$1,768.00 P-133 \$1,928.00	\$2,478.00	\$2,698.00	Dual P-133 \$3,298.00 Dual P-150 \$3,578.00 Dual P-166 \$3,978.00	\$3,175.00 Other config's available

LEASING for any of the Einstein systems is available thru National Computer Leasing 1-800-758-4217 OS/2 Warp Connect is custom pre-load as defined by the customer

1-800-776-8284
<http://www.indelible-blue.com/ib>

For complete hardware listing, call for our new catalog!



Prices subject and configurations subject to change. All hardware subject to restocking fee. OS/2 is a registered trademark of IBM Corp.; all other trademarks belong to their respective owners. "Outfitters for the Information Frontier" is a trademark of Indelible Blue, Inc.

Index to Advertisers

Company	Page	Reader Service	Sales Phone	Internet ▲ Web site
BMT Micro	49	22	800-414-4268	bmt@BMTMICRO.COM
Cirrus Technology Inc.	8	5	301-698-1900	102404.3643@compuserve.com ▲ http://www.cirunite.com
Clear and Simple	16	11	860-658-1204	▲ http://www.clear-simple.com
Clou Consulting	49	24		
Computer Data Strategies	6	4	800-284-4156	sales@CDS-inc.com ▲ http://www.cds-inc.com
Datarescue Spri	49	26		info@datarescue.com ▲ http://www.datarescue.com
Development Technologies Inc.	5	3	803-790-9230	71333.3362@compuserve.com
Hilgraeve Inc.	49	27	800-826-2760	CIS: Go Hilgraeve ▲ http://www.hilgraeve.com
HockWare	40	18	919-380-0616	hockware@vnet.net ▲ http://www.hockware.com/hockware
IBM	1,17			
Indelible Blue Inc.	C2,32,41,47	1,15,19,21	800-776-8284	sales@indelible-blue.com ▲ http://www.indelible-blue.com/ib
International Software Solutions	10	6	407-820-0802	sales@iss2you.com ▲ http://www.iss2you.com
JBA International	43	20	800-JBA-INTL	▲ http://www.jba.co.uk
Keller Group	50	29	612-429-7273	kgroup@ibm.net ▲ http://www.kellergroup.com
MHR Software & Consulting	37	16	908-821-0359	70312.627@compuserve.com
MicroEdge	2	2	919-303-7400	sales@slickedit.com ▲ http://www.slickedit.com
Mt. Baker Software	49	28	360-336-3200	bminor@mountbaker
Network Technologies	50	31	800-742-8324	nettech@ibm.net
Oracle Corp.	25	12		
PCX	57	33	800-800-4-PCX	sales@pcx.com
Perez Computing Services	49	23	360-428-5025	pcs@ncia.com ▲ http://www.ncia.com/~pcs
Pinnacle Technology	50	30	317-279-5157	ehenning@pinnacletech.com ▲ http://www.pinnacletech.com
Software Development	15,53	9,32	415-905-2702	rrobes@mfi.com
Softbridge Inc.	31	13	617-576-2257	market@sbridge.com ▲ http://www.sbridge.com
SofTouch Systems Inc.	C4	35	800-944-3028	webmaster@softouch.com
Spitfire Software	40	17	404-257-0187	csxm88a@prodigy.com
Stardock Systems	C3,13	34,8	313-453-0328	info@stardock.com ▲ http://www.stardock.com
Stern&Morrow Software Consultants	16	10	561-392-0104	sal@icanect.net ▲ http://www.icanect.net/~smorrow
TTC Computer Production	49	25	214-594-8103	ttc@gte.net ▲ http://www.infooncell.com
V Communications	12	7	800-648-8266	75031.3042@compuserve.com
Visual Circuits Corp.	52	14	612-781-2186	▲ http://www.vcircuits.com
Windows NT Magazine	59		800-250-2429	▲ http://www.ntsyste.ms.com

We provide the information on this page as a service to our readers; however, we assume no liability for errors or omissions.

Need a Software Product? Find it on the Web!

The Software Solutions™ database is the most diverse, comprehensive source of software products available on the internet. Includes special coverage of industry solutions.

<http://www.mfi.com/softwareguide/>

Locate

the abundance of products for multiple hardware and software platforms with the super-fast search engine.

Browse

thousands of listings, updated monthly, and organized by industry and product category.

Search

the best tools and services all in one place....just a few keystrokes away.

AIX, OS/2® tools and more!

To Advertise in this section call
Gordon Peery at (603) 924-9141



Marketplace

IMPROVE! CUSTOMIZE! REALIZE!

your OS/2 system with products from BMT Micro Inc.

HTML WIZARD (\$20) is the most popular OS/2 HTML editor. Greatly simplifies editing Web documents with drag & drop, syntax checking and much more.

FontFolder (\$30) makes using fonts a breeze. Point - click install. View and print uninstalled fonts directly from CD-Rom. "Every font management function I could possibly use" - OS/2 Magazine.

Investor (\$89) is the complete investment package for the OS/2 investor. Fund tracking, portfolio management and technical analysis. Features extensive Rexx interface.

Demos available at <http://www.bmtmicro.com> Info: bmt@wilmington.net
Orders only: 800-414-4268 Fax 910-350-2937 Questions/Inquiries: 910-791-7052
BMT Micro Inc. 5019 Carolina Beach Rd. Ste. 202 Wilmington, NC 28412

Reader Service No. 22

CAKE

Simple Software from Clou Consulting Co.

DOS OS/2 WIN Computer algebra by keyboard entry.

Something for everyone. Arithmetic, algebra and **MORE**. Practical and useful. No language to learn. Free upgrades.

Simply \$67.00 plus shipping.

Order: **1-800-226-0640** Fax: 612-553-0147
VISA MC AM-EX

1400-F Hwy 101 North, Suite 183, Plymouth, MN 55447

Reader Service No. 24

Interactive Disassembler Pro 3.5

Native 32-bits multi-threaded OS/2 application, interactive auto-commenting disassembler, handles all OS/2 executables, dlls, drivers, ifs and more; also supports DOS, NE, LE, PE LX, NLM, Binaries, ROM and more; 80x86, Pentium, MMX, Pentium Pro, 68K, Z80 and more; functions, arrays, structures, interactive C like internal language. **don't believe us, try!**

sample disassembly below

```
call DoSetExceptionHandler
mov eax, offset CPOB30_mather
call CPOB30_exception_proinit
mov eax, [esp+20h]
call sub_105B4
push 109ACh
push 0FF01h
call DoExitList
call sub_109DC
push 10000h
mov ecx, large dword ptr ds:CPOB30__environ
sub esp, 0Ch
mov edx, dword_203AC
mov eax, dword_203A8
call CPOB30_callback_opt_sys
call CPOB30_exit
```

download our evaluation!

<http://www.datarescue.com>

info@datarescue.com

limited introductory offer

\$199

valid until january 1997

DataRescue - 110 rue du Condros - 4121 Neupre
Belgium tel +32-4-3729110 fax +32-4-3729114
VISA - MasterCard - Eurocard - COD - PO

Reader Service No. 26

Money Tree

Personal financial package for OS/2

<http://www.Mount-Baker.com>

call toll free

(888) 485-3200

Money Tree is a Trademark of Mount Baker Software, Inc.

Reader Service No. 28

Defend Against Desktop Freezes!

SRP Only \$29

Ctrl-Alt-Del Commander for OS/2 Warp

- Prevents accidental rebooting of OS/2 from within any OS/2, DOS, or Win-OS/2 session. It prevents you from losing data when pressing Ctrl-Alt-Del while programs are running, providing the one safety feature many Window's® users have missed in OS/2.
- Lets you stop programs that have locked up the Workplace Shell®.
- Restart a frozen Workplace Shell without stopping any of your running programs - it even lets Presentation Manager and Internet access programs continue so you don't lose data!
- The **Ctrl-Alt-Del Commander** wakes up OS/2 when Ctrl-Esc can't.
- Shows vital information about active programs, your PC, and OS/2 Warp.
- Works with all Warp versions including Warp Connect®, Warp Server®.

Orders: **1-800-IPF-7622** Voice/Fax: 360-428-5025

Compuserve: 70410,2416 Internet: pcs@ncia.com <http://www.ncia.com/~pcs/>
Perez Computing Services 4725 Monte Vista Place Mt Vernon, WA 98273

Reader Service No. 23

OS/2 InfoOnCall for Voice/Fax Modems



InfoOnCall is an easy to use, yet very powerful voice/fax/paging application generator. It gives you customized voice mail, fax on demand capabilities. This unique script language is based upon a series of function cards to control integration of the voice/fax modem hardware with voice, graphics and data files. Join hundreds of happy OS/2 InfoOnCall users, and start writing your own applications. Caller ID, distinctive ringing supported. Only \$145. 4 line version \$295. Modems are available, too.

TTC Computer Products (214)594-8103 <http://www.InfoOnCall.com>

Reader Service No. 25

NEW! Professional Version with Remote Control



HyperACCESS® Pro

COMMUNICATIONS SOFTWARE FOR OS/2

The Official Upgrade from HyperACCESS!

HyperACCESS Pro meets your personal communications or enterprise-wide connectivity needs:

- Emulate all the most popular terminals
- Transfer files fast and error-free
- Automate any online access process
- Customize with your own keys and buttons
- Operate your office PC from home
- Remotely maintain distant OS/2 PCs
- Provide training or support to other OS/2 PC users via modems, Internet, or TCP/IP, NetBIOS or SPX/IPX LANs.

Hilgraeve

High performance software to advance communications

111 Conant Avenue, Monroe, MI 48161

Internet home page: <http://www.hilgraeve.com>

Phone: 313/243-0576, Fax: 313/243-0645

Call 1-800-826-2760

Reader Service No. 27

OS/2 Marketplace

Where 60,000 buyers of OS/2 products
shop 'til they drop!

Call Gordon Peery

Tel: (603) 924-9141 / Fax: (603) 924-9209

gpeery@mfi.com

Single Sign-On Enterprise wide!

Clients: *Any Operating System!*
Servers: *Any NOS as primary server!*
Host: *RACF, ACF/2, Top Secret, Oracle,
and many, many more!*

Secure GenTicket™ 800.525.1650

Reader Service No. 30

FaxWorks for OS/2

Our new **FaxWorks Lite** is in the Merlin BonusPak...
Upgrade to the **Retail Version** from Indelible Blue (800-776-8284).
New **Version 3** with Voice, REXX, Internet E-mail and more.

Also from Keller: Fax API & Fax Printer Driver Toolkits

Keller Group Inc.

Fax: (612) 653-1987
<http://www.kellergroup.com>

Fax: (800) 329-3293
kgroup@ibm.net

FaxWorks is a trademark of Global Village Communication.

Reader Service No. 29



*A World With Trees...where the trees you plant create cool,
quiet neighborhoods*

OPERATE UP TO 16 WARP SERVERS WITH 1 KEYBOARD, MONITOR & MOUSE

- Control up to 16 servers with one switch.
- Operate with keyboard or buttons on front.
- Keyboard & mouse simulation at all times.
- Keyboard status lights updated upon switching.
- 1600 x 1200 resolution with no degradation.



KEYBOARD, MONITOR & MOUSE SPLITTERS

- Multiple users can access one computer.
- 1600 x 1200 resolution with no degradation.



NETWORK TECHNOLOGIES INC

1275 Danner Drive Aurora, OH 44202

216-562-7070 • FAX: 216-562-1999

E-Mail: nettech@ibm.net

Call for your
FREE CATALOG
800-742-8324

Reader Service No. 31

CopyShop/2 2.0

Turn your HP scanner into an OS/2
Copier, Fax Machine & Viewer
for just \$69

- Color, Grayscale, B&W
- PCL5 or Universal Printer
- 30 File Formats
- Resolution to 600 dpi
- Reduce/Enlarge
- Dark/Light, etc.

Supports automatic document feeders, prints collated sets of copies, and includes scanner drivers to run windows programs in Win-OS/2 sessions.

Trafalgar Business Systems 212-673-9000 Fax 212-995-2777 cpyshp@ibm.net

Trees Make a World of Difference™

Trees Make a World of Difference. Between drab, barren yards, and cozy, sheltered homes. Between hot, sun-baked streets, and cool, shaded neighborhoods where bird songs fill the air.

Trees Make a World of Difference. Between smoggy air and noisy traffic, and clean air and quiet places to enjoy.

By planting trees, you can increase the value of your property up to 15% or more. At the same time, you'll make a personal, positive contribution to a better environment.

The trees you plant will remove carbon dioxide from the air, produce oxygen, and give wildlife a home. And trees help conserve energy. They can lower your heating bills 10-20%, and cut cooling costs 15-35%.



A World Without Trees

Find out how trees can make a world of difference for you, and your neighborhood. For your free brochure write: Trees For America, The National Arbor Day Foundation, Nebraska City, NE 68410.

Happenings

BY DICK GORAN

Object REXX

There have been some happenings recently in the REXX arena. A happening, as defined by Webster, is "something (as an event) that is particularly interesting, entertaining, or important." With the release of OS/2 Warp 4.0 (a.k.a. Merlin), OS/2 now has two REXX interpreters—classic REXX and Object REXX. Classic REXX is the name being used to designate the SAAREXX interpreter that has been available on previous releases of OS/2 Warp. Object REXX is a completely new REXX interpreter that has a direct interface with System Object Module (SOM) and provides many new capabilities to the REXX programmer. Prior to OS/2 Warp 4.0 Object REXX had only been available in beta release on the Developer Connection CD-ROM. All of the functionality of classic REXX is included in Object REXX with the new object capability.

IBM has chosen to release OS/2 Warp 4.0 with classic REXX as the default REXX interpreter. This choice was necessary for a couple of reasons.

The most important of these reasons was a paradigm shift with Object REXX, in which a complete REXX program is checked syntactically before execution is allowed. Under classic REXX, a REXX program that contains syntax errors in its code will not trap until that code is executed. Therefore, REXX programs that have run properly for some period of time may suddenly begin to trap with varying errors. The same program under Object REXX will not execute at all because the syntax errors are detected prior to execution. This change alone would cause a large percentage of existing REXX programs to fail.

The second reason that OS/2 Warp

4.0 doesn't default to Object REXX is the new interpreter's dependency on the Workplace Shell (WPS). Because a number of large enterprise installations run OS/2 without the WPS, defaulting to Object REXX would make it impossible for them to install OS/2 Warp 4.0. Choosing classic REXX as the default interpreter rather than Object REXX poses no real hardship because IBM also provides the ability to toggle between the two. The only downside is that a re-IPL (or reboot) is required to implement the alternate REXX interpreter. No workaround exists because DLL conflicts prevent the two interpreters from coexisting on the same system.

OS/2 Warp 4.0 contains the file `\os2\switchrx.cmd`, which will toggle the classic REXX and Object REXX interpreters on your system. Calling SWITCHRX a second time before re-IPLing allows you to undo the previous toggle. While SWITCHRX isn't the most flexible REXX program I've ever seen, it works properly as long as your DLL files are in the same directories in which the original OS/2 Warp install put them. After switching from classic REXX to Object REXX, it's also necessary to run `\os2\wpsinst.cmd`. This program registers the WPS classes used by Object REXX. WPINST can also be used to query whether the Object REXX classes have been registered.

REXX updates

Some long-awaited fixes to problems in classic REXX are included in OS/2 Warp 4.0. Among these are the problems caused by applying FixPaks 17 through 22 to OS/2 Warp 3.0. These errors are most noticeable when running REXX programs written in either the VX-

REXX from Watcom International or VisPro REXX from HockWare. These same fixes will be available in a later FixPak from IBM; however, they are also available free for download from <http://www.cfsrexx.com>. Check the REXX-related Files page at this Web site for the latest information. Some of the symptoms of the problems that are fixed include: truncated dialog boxes; SYS3175 traps when exiting the respective GUI REXX design environment; spin buttons that don't pass their changes back to the program that owns them; and mysterious hangs when running GUI REXX programs.

GUI REXX example

If you're interested in both computer games and REXX and want to see a GUI program that exploits REXX in a graphical environment to its fullest, I've made our new video poker game, CFSPoker, available free for anonymous download. This game replicates the video poker machines that have become so popular around the world. The program is distributed with 1,000 video poker credits and, as long as you maintain a positive credit balance, there is no registration fee or other obligation.

REXX tools

Any time you update your operating system, you run the risk of "losing" programs and files that you had previously installed. This problem is particularly perplexing if a program that you installed a long time ago had also installed Dynamic Link Library (DLL) files. Similarly, you've probably forgotten about some of the executable files (.exe) that are buried deep in your PATH. It is a fairly simple task in REXX



The REXX Column

to write programs that will traverse both the PATH and LIBPATH in your *config.sys*. You can then use the **SysFile-Tree()** function to build a stem or compound variable of all the appropriate file extensions and create a list of these files. You can anonymously download two free tools (*listdll.zip* and *listexe.zip*) from <http://www.cfsrex.com> in the Public REXX-related Files section (also <ftp.cfsrex.com/pub/>) what will accomplish this task for you—or you can use them as models for your own program. LISTDLL not only produces a listing (*listdll.txt*) of all DLLs in their search order precedence, it will also provide you with a listing of any DLL that appears in more than one directory included in your LIBPATH. Similarly, LISTEXE will list all of the executable files in the same search order in which they would be found if you launched the program.

One particular DLL that you probably have in more than one directory is *vrobj.dll*. This file contains the run-time routines used by VX-REXX. Each VX-REXX program you install, more than

likely, comes with its own copy of *vrobj.dll*. If you have programs on your system that were written with version 1 of VX-REXX, you cannot discard the version 1 VROBJ because the current version (2.1d) is not compatible with the older version. However, if you have multiple VX-REXX programs that use version 2 of VROBJ, you only need one copy of the 900K file so long as it is located in a directory that is included in your LIBPATH.

FAXWorks Pro for OS/2

FAXWorks Pro for OS/2 is expected to have the REXX Application Program Interface (API) interface designed by the Keller Group for PMFax (the enterprise parent of FAXWorks Pro for OS/2) ready for release in the near future. The REXX API allows you to fax-enable your REXX programs, customize voice answering scripts, and augment the product with your own value-added features. The REXX API allows you to create customized voice, fax, text, and e-mail applications and to deliver them to a diverse user community.

The API consists of two types of functions. The FxLn functions (Line Control REXX Functions) can be called only within REXX scripts that are running as an "Answer Script" or "Dial Script" in PMFAX to answer incoming calls and interact with the caller. The FxRx functions (External REXX Functions) can be called from any REXX code, including applications that are written in VisPro REXX, VX-REXX, or other REXX tools, to provide your applications with a full Presentation Manager interface. **OS/2**

Dick Goran is the author of the REXX Reference Summary Handbook. His free REXX utility programs can be downloaded from OS2DF1, Lib 6 on CompuServe or FTPed from <ftp://ftp.cfsrex.com/pub/>. He can be reached via e-mail at 71154.2002@compuserve.com.

Resources:

CFSPoker (free for anonymous download)

CFS Nevada Inc.
WWW <http://www.cfsrex.com>
FTP <ftp://ftp.cfsrex.com/pub/CFSPoker.zip>
READER SERVICE NO. 117

FAXWorks Pro for OS/2 (\$149)

Global Village Communication
WWW <http://www.globalvillage.com>
READER SERVICE NO. 118

LISTDLL and LISTEXE (free for anonymous download)

CFS Nevada Inc.
FTP <ftp://ftp.cfsrex.com/pub/listdll.zip>
<ftp://ftp.cfsrex.com/pub/listexe.zip>
READER SERVICE NO. 119

PMFax

Keller Group Inc.
WWW <http://www.kellergroup.com>
READER SERVICE NO. 120

VX-REXX (Standard Edition, \$99; Client/Server Edition, \$299)

Watcom International
WWW <http://www.powersoft.com/products/languages/vxrexbr.html>
READER SERVICE NO. 121

VisPro REXX

HockWare Inc.
(919) 380-0616
Fax (919) 380-0757
READER SERVICE NO. 122

MPEG REELTIME

PLAYBACK BOARD

World's 1st
MPEG for OS/2 and Microchannel™

Robust drivers
include Windows™, DOS and **OS/2®***

Truecolor, full-screen, full-motion video playback, CD quality sound

Hardware
Synchronized Video and Audio

See us at...
COMDEX Fall '96
Microsoft Partner Pavilion
Booth No. H2

or call...
(612) 781-2186
<http://www.vcircuits.com>

VISUAL CIRCUITS CORPORATION
3989 Central Ave. NE, Suite 630
Minneapolis, MN 55421

4-ReelTime/P MPEG1 playback board provides 4 independent output channels for PCI systems

ReelTime/I MPEG1 playback board for ISA systems

ReelTime/M MPEG1 playback board for IBM PS/2® Microchannel systems

*OS/2 for ReelTime/M & ReelTime/I only.

Reader Service No. 14

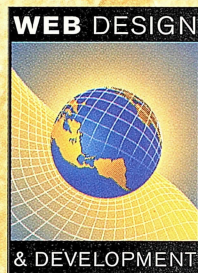
And mark your calendars for:
Web Design & Development '97
February 22-26, 1997
Moscone Convention Center, San Francisco, CA
In November 1996, go to www.web97.com

Most web sites are about as interactive as a dead cat.

But we're changing all that. Our 75 conference classes will teach you to slim down graphics, speed up your site, link up to your corporate database, increase security, manage cybercash and a hell of a lot more. We don't print a catalog, so to learn more and register, do what any self-respecting web developer would do—visit our web site.

<http://www.web96.com>

Feeling nostalgic? Contact us by phone at 617.821.9215 or by e-mail at web96@mfi.com



Web Design & Development '96 East
October 28–November 1, 1996, Washington, D.C.

In conjunction with Software Development '96 East

Sponsored by:

Co-sponsored by:

WEBTechniques
SOLUTIONS FOR INTERNET AND WEB DEVELOPERS

MACROMEDIA

 **Global Exchange**
INCORPORATED

 **ASYMETRIX**

 **intel**

Microsoft

 **SPYGLASS**
Make The Net Work™

 **Sun**
microsystems

Information Builders

NETobjects

 **SYBASE**

 **Powersoft**

General-purpose telecommunications software packages are alive and well. People still dial into electronic bulletin-board systems (BBSes) to download drivers, to communicate, and to check out shareware programs. Users log onto minicomputers and mainframes remotely. And, occasionally, the fastest way to get a file from Point A to Point B is to dial directly into Point B's computer to transfer the file.

Telecommunications software is perhaps the richest product category in the OS/2 marketplace. That's not surprising, since OS/2 is excellent at multitasking communications, freeing up your time to work on other tasks during a long file download. Here's a review of nearly all of the OS/2 communications packages we found; we intentionally omitted cKermit and MagCom (we found few people using them) and PCom, found in IBM's AttachPak (you wouldn't purchase it separately). We describe (though we don't review) mainframe-oriented terminal emulation programs and one special-purpose OS/2 communications program for a proprietary service.

All of the programs we review here cover the basics; you can use them as a terminal to dial up an online service. Each provides a phone book, in which you store the BBSes' phone numbers or services you dial frequently. While each program lets you use a modem to reach your destination, some support Telnet as well, so you can "dial" into distant BBSes through a local Internet connection. (To use that feature, some communication packages require Ray Gwinn's V-Modem, included with his popular SIO communication drivers.) Most of the applications support macros or scripts, which let you automate access.

You might not need all of these features. If your primary use of a communications program is to occasionally download a driver from a vendor's BBS, scripts might

be superfluous. In that case, you might be happy with HyperAccess Lite, the application included with OS/2 Warp, or with another inexpensive package.

Rather than keeping you in suspense, we'll give you our bottom-line here: If your needs are truly simple, stick with the copy of HyperAccess Lite included in OS/2 Warp. If you need more, but you're a telecommunications beginner, RhinoCom will be your most comfortable introduction. Technical users will appreciate Zap-O-Comm—it's fast and nimble. For all-around general use, however, we like HyperAccess, though Livewire is an acceptable alternative.

Now, let's take a look at the packages. Because this review is not a tutorial, we don't explain many of the telecommunications-specific terms. In most cases, if you don't know what a particular feature does, you probably don't need it.

ChipChat Corporate Communicator

The ChipChat Corporate Communicator may have a name that's almost too cute for words, but it's a communications program that does a decent job of delivering the corporate goods.

Well, most of them, anyway. For example, while ChipChat supports X-Modem, Y-Modem, and Kermit, it doesn't support Z-Modem. Has someone been asleep at the wheel for a few

years? Z-Modem has been the BBS user's data transfer protocol of choice for years now.

The terminal emulations include the usual assortment of ANSI, the VT family, and TTY. ChipChat will also work with an existing TCP/IP stack as a Telnet client. Again, that's nice, but there's nothing to write home about here.

Where ChipChat does stand out among some of its fellows is in its support for IBM LAN Server's network modem pools. While not as common as other modem-sharing techniques, if that's the kind of pool you've got, ChipChat's ready to go swimming in it.

For an additional fee—an unnecessary one, in my opinion—ChipChat will also support IBM's ARTIC multiple modem boards.

All this for only \$299? Excuse me if I don't rush over to my checkbook. The ChipChat family does have one redeeming virtue, however: the ChipChat Wireless Communicator, another program that works with ChipChat Corporate Communicator. This product lets you send messages to alphanumeric pagers right from your desktop. Of course, to use it from Corporate Communicator, or any other program, you're going to need to do some REXX programming.

Still, for \$99, I might buy the 32-bit SOM Wireless Communicator. As for ChipChat's communications programs, though...not at that price. -SJV-i

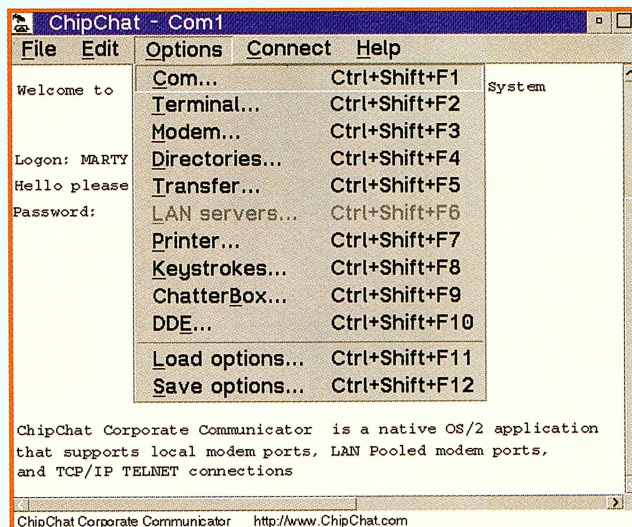


Figure 1: ChipChat Corporate Communicator has a range of options but doesn't support Z-Modem.

HyperAccess 6.01 for OS/2

HyperAccess for OS/2 is the "big brother" to HyperAccess Lite, the communication program that comes in the OS/2 Warp Bonus Pack. HyperAccess is a full-feature program, offering a wide range of terminal emulation and file transfer protocols. It includes the HyperProtocol compression algorithm, which, according to Highgrave Inc., allows file transfer speeds up to five times as high as your modem connection's actual speed—

the service to which you're connected also supports the protocol.

HyperAccess displays a strong object orientation. For example, each directory listing is an object that can be dragged and dropped or shadowed to a different phone book or to your desktop. You can drag listings to the Terminal Window to launch them. The program automatically senses the parameters used by a system (such as data bits and stop bits), then automatically configures the phone book entry, making it even easier.

Scripting uses the REXX language. A "learn" capability makes building a simple logon script a point and shoot operation. You will need more REXX knowledge to automate a session further, of course. Session logging is a little cumbersome, requiring you to turn the logon each time, although a default log name can be set for each service, and you can choose to append or overwrite the existing log.

Hilgraeve touts the program's speed, and in operation it is quite quick. However, it is slow to load, taking as much as three times the loading time of most of the other packages.

HyperAccess for OS/2 is a good, solid program that utilizes OS/2's SOM well. The wide range of terminal emulations makes it excellent for talking with a variety of hosts. The pre-established scripts for major services such as CompuServe make it a complete communications package, relatively easy for the beginner to start with but power-packed enough to meet anyone's needs. -DF

Livewire 3.2

Livewire, from Office Solutions, is an easy to use, but limited, shareware package. Until you register, there are some discreet "Author's notes" screens describing

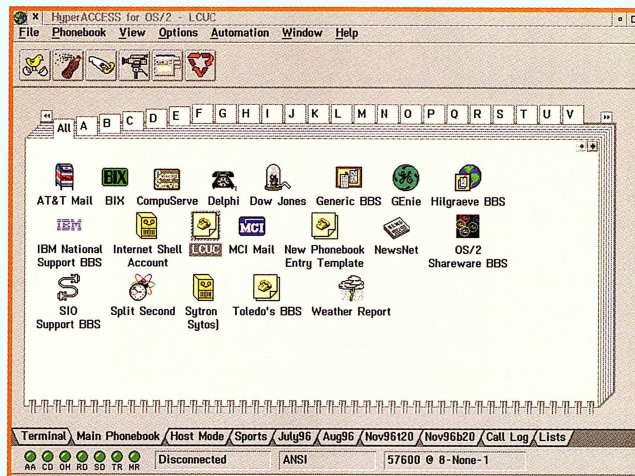


Figure 2: In the HyperAccess dialing directory, each entry is an object.

some of the program's features and how to use them. Aside from those, help is literally nonexistent in the program—not even from the menu bar. Full registration brings with it a printed manual.

Livewire's terminal emulations are limited. On the other hand, RIPTerm 1.54 is supported through an add-on, the only one of our packages to offer it. So, if you need RIPTerm, Livewire's for you. FTP support is also limited, and no provision exists for external protocols. Port support is wider than average, ranging from COM1 through COM8, as well as Named Pipe and Telnet.

This is a true Workplace Shell program. The desktop folder holds terminal, phone book, and log objects, as

well as upload and download folders. For example, it's possible to create multiple terminal objects, each with their own settings. Livewire also supports cut and paste and drag and drop of text to and from the terminal window.

The record mode in the "Run REXX scripts" dialog worked well for creating a simple logon script. For more complicated operations, some basic REXX programming skill is required. Macros are also supported.

Livewire offers an unusual modem lights display, running it as a separate process in a resizable movable window. A graphical display can also show current and average sending and receiving speeds, again in its own window.

A unique capability is on-the-fly switching from a graphic window to full-screen text mode. Pressing <F12> kicks it into text mode. Another touch, and you're back to window mode.

One useful feature is Livewire's built-in support for the *unzip.exe* file decompression utility. If you have *unzip.exe* in a directory in your PATH statement, select a .zip file in your download directory and bring up the pop-up menu. Pick "Livewire UnZip," and the software will decompress the file into a directory it creates.

Livewire was fast loading. Subjectively, it felt very quick in operation, as well. The button bar is not overloaded with choices, and lingering with the cursor on a button quickly brings up a line explaining what it does, making the buttons relatively easy to use. Unfortunately, the lack of help makes Livewire less than ideal for a new user. -DF

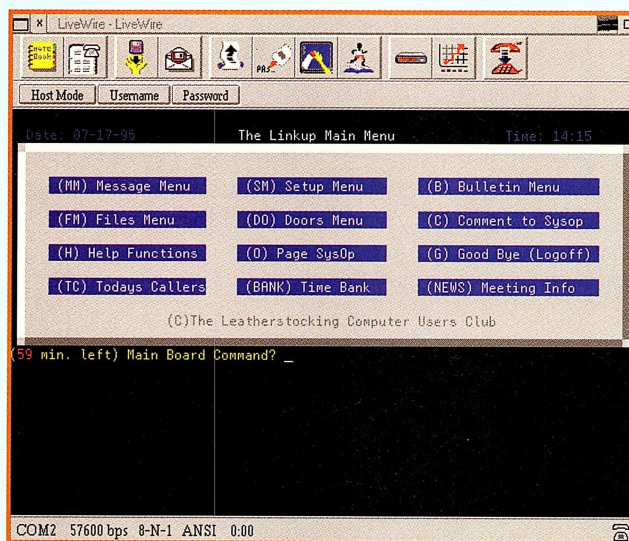


Figure 3: The Livewire terminal screen is notable for its lack of clutter.

Pmcomm 2.40

Multi-Net Communications' Pmcomm tries hard. Unfortunately, despite its history as one of the first OS/2 communication programs, Pm-

Calling All Mainframes

The ability to dial in to your local BBS is all well and good, but it probably won't have much of an impact on your company's bottom line. Many programs we discuss here also serve as decent terminal emulators for such popular minicomputers as the DEC VAX/VMS series and almost any UNIX box you'd care to name. However, some machines—especially IBM's big mainframes—require more. A lot more. That's where micro-to-mainframe programs have their niche. Not everyone needs this kind of communications program, but if you need it, you really need it.

These kind of programs break down into two basic types: the ones that can talk with mainframes, which require some kind of 3270 emulation; and those that can speak to IBM's ever popular AS/400 minicomputer series.

If you have to do it the hard way and build your terminal application from the ground up for a specialized application, you may need Microgate's BSCAPI for OS/2 (512-345-7791). This middleware program lets you build interactive programs for systems using the Binary Synchronous Communications (BSC) protocol. One word of caution, however: REXX is fine and dandy but, to make BSCAPI work, you will need to know C, C++, or COBOL. In brief, only serious programmers need apply for a purchase order.

Another do-it-yourself program is SNAPPI (Structured Network Application Interface) from Automated Information Processing (201-962-7677). This middleware product enables you to build bridges between a variety of mini- and mainframe computers and your OS/2 system.

A more general use program, and far easier to use than either of the last two, is Eicon Technology's Eicon Access for OS/2 3270 (214-239-3270). This 3270 emulator supports most Systems Network Architecture (SNA) features and works well with Presentation Manager. Its near cousin, Eicon Access for OS/2 5250, does a similarly fine job for AS/400 or System 3/X hosts.

The granddaddy of all 3270 emulators, Attachmate's IRMA, is still around and kicking, albeit under a new name. This old warhorse now goes by the name Extra for OS/2 (800-426-6283) and is still the reliable, handles-every-IBM-mainframe-fill-in-the-blank-acronym-in-the-business application it always was. In particular, Extra's the only program I know that copes with CM/2 applications—no small matter if you want to get rid of your old 3270 terminals.

Extra can deal with up to ten 3270 sessions at once. Whether you can do the same is, of course, another matter. Look upon it as a challenge to your REXX programming skills. Seriously, it is a good program. In addition to working with SNA, it also supports TN3270, the almost-but-not-quite-Telnet connection to 3270. Of course, you can't run Distributed Function Terminal (DFT) mode and the like over TN3270; but if TN3270 is all you can run over your local Ethernet, you're still ahead of those who need mainframe connectivity and don't even manage that much connectivity.

If you have to use BCS, and you don't want to do the hand coding that BSCAPI requires, the program for you is Microgate Corp.'s MG3780 for OS/2 (512-345-7791). This terminal emulator supports both 2780 and 3780 terminals, which in turn, makes it ideal to act as Remote Job Entry (RJE) systems for mainframes still using Job Entry subsystems. While RJE may be prehistoric, MG3780 isn't; it's a 32-bit native PM program.

By now, you should have found a program that will do the job for your corporate communications. But if you still can't find the program you need to bridge the PC/mini gap, the best listing of big iron communication programs I've found is at the OS/2 Software Solutions' Web site (<http://www.mfi.com/os2dev/cgi-bin/os2quer?prodcat=Micro-to-Mainframe+Links#TOP>). Good hunting!

Steven J. Vaughan-Nichols

tions; there are no notebooks, just many dialog boxes and a simple text window.

Pmcomm can use extended REXX as its macro language, or you can choose a separate proprietary script language. In either case, the program depends on your knowledge, not its capabilities. For instance, when you use the script generator, the manual warns you that REXX programs need a .cmd extension, and internal scripts must end in .scr. If that's so important, why doesn't Pmcomm append the extension for you automatically?

In particular, the online assistance that Pmcomm provides is so minimal that you have to be fairly well grounded in telecommunications applications just to get started. However, if you know that much about the subject, you probably want more than this program can provide.

Pmcomm does have a few positive features. Among the best of them is its ability to FTP files across the Internet. On the down side, you have to know the exact file and directory path—there's no browser—but this can be a time-saver for the FTP sites you use or update often. Also, uploading a file can be as simple as dragging and dropping a file object onto the communications window. Otherwise, there's little to recommend this product; stick with HyperAccess Lite. —ES

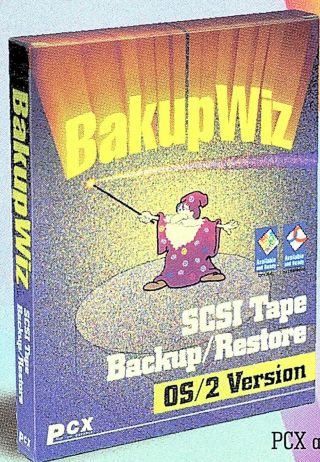
RhinoCom 1.5 and RhinoCom Home 1.5

Rhintek Computer Engineering's RhinoCom might not win the beauty prize, but it certainly earns Miss Congeniality. RhinoCom doesn't assume too much about your telecommunications knowledge, but it won't talk down to you either. The installation program is the nicest I've seen in a long time, and the manual and online help are clear enough for novices to understand; they explain basic online concepts that many vendors gloss over.

RhinoCom's clarity doesn't come at the expense of usability. While the user interface is comparatively spartan, it's always pleasant. You won't say "ooh!" very often as you use RhinoCom, but you will probably never curse it. "Coaches" walks you

comm no longer measures up to its competition. Its bare-bones interface is so far from user friendly that one has to call it user grumpy. For example, to set up a phone book entry, Pmcomm requires that you type in

the name of your communications port—that's right, you actually type in C-O-M-2. It doesn't even have the saving grace of acting like a self-respecting OS/2 application, as it follows few Workplace Shell conven-



BackupWiz™

OS/2 BackupWiz™ is the SCSI tape backup solution you have been looking for! Designed to exploit OS/2's multiple threading, BackupWiz gives you a quick and reliable method to completely back up your OS/2 system. HPFS and FAT

file systems are supported and Extended Attributes, Long File Names, System files, and the Workplace Shell are backed up. You can even restore your entire OS/2 boot volume from tape!

Ease of use is another of OS/2 BackupWiz's strong points. A simple, character oriented menu interface and command line operation are provided. OS/2 BackupWiz comes with support for most 1/4", 4mm (DAT), and 8mm tape devices. BackupWiz can also backup to other hard drives, file servers, minis/mainframes via TCP/IP, and removable drives including Bernoulli, Syquest, diskette, and magneto optical. There is even a version of OS/2 BackupWiz that supports many of the automatic tape changer mechanisms. Any SCSI host adapter that has an ADD driver can be used with OS/2 BackupWiz.

PCX also works hard to keep you satisfied after the sale with outstanding customer support. Being a small and aggressive company means that we can respond to your needs that much quicker.

OS/2 BackupWiz is priced at \$149 (autochanger version \$399). PCX also has a competitive upgrade program where you can purchase OS/2 BackupWiz for just \$49 by sending in an eligible competing product. We offer a 30 day money back guarantee to protect you in case OS/2 BackupWiz does not work for you! Call our toll free number and order today!



**Available
and Ready™**
for OS/2



**Available
and Ready™**
for LAN Server



PortaTape™

PortaTape™ is your complete portable tape backup solution for OS/2. Using high speed SCSI tape devices, the PortaTape line offers capacities ranging

from 250 megabytes to 10 gigabytes. Offering backup speeds from 6 to over 18 megabytes per minute when using a high speed, bidirectional printer port, units in the PortaTape series are priced from \$995.

Members of the PortaTape series utilize a range of SCSI tape drives including 1/4 inch, 4mm, and 8 mm mounted in low profile external enclosures. Connection to the host system is via the system's parallel printer port, which may be utilized concurrently with tape drive operation. A copy of OS/2 BackupWiz

is included with each PortaTape.

PCX also markets a complete line of standard SCSI tape backup units ranging in capacity from 250mB to over 10gB. Available in both internal and external models, these units are priced from \$550. For very large backup needs, PCX offers robotic tape loader mechanisms from 48gB to over 1 terabyte.

LinkWiz™ transfers files between OS/2 and/or DOS/Windows systems, over parallel cable, at 5 megabytes per minute — several times faster than any other file transfer utility.

Now... transfer files at up to 5 megabytes per minute between OS/2 and OS/2, or OS/2 and DOS/Windows, or DOS/Windows and DOS/Windows, or OS/2 and UNIX, or DOS/Windows and UNIX.

If you have lots of time on your hands, stay with your old transfer utility. But... if you want *warp speed* file transfers of large production size files and directories, then LinkWiz™ is for you! LinkWiz was developed to unleash the power of OS/2.

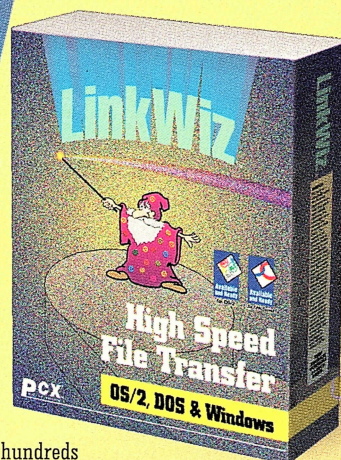
- Installs and runs in only minutes. ■ Intuitive operation allows anyone to make simple or massive *warp speed* data transfer between systems. ■ Special parallel and serial transfer cables are included.
- Supports Presentation Manager, long file names, extended attributes and blindingly fast 32 bit I/O. ■ Clone hundreds of other OS/2 systems from a single "seed" OS/2 system.
- DOS/Windows and OS/2 version list price is \$149.

Call about our competitive upgrade offer.

If you are ready for a next generation *warp speed* performance file transfer utility... try LinkWiz now!

Call or fax your order today!

LinkWiz™



FOR MORE INFORMATION OR TO ORDER CALL:

1-800-800-4PCX

PCX

**3525 Del Mar Heights Road, Suite 313, San Diego, CA 92130
(619) 259-9797 · Fax: (619) 481-6474**



Shipping is non-refundable. No cancellations on special order items. 20% restocking fee on hardware refunds within 30 days. No refunds or exchanges after 30 days. Prices subject to change.

Review

through basic processes, the status bar is easily configurable with useful information, and a line monitor can show you what's happening on your phone line. RhinoCom's host mode has several levels of security and enough features to make you contemplate using it as a simple company BBS. If you want to invest programming time, "splices" let you add more functionality.

RhinoCom's Home version leaves out some terminal emulations, Y-Modem and Kermit protocols, and host mode, as well as minimizing scripting features. Nor do you get the printed reference manual with the Home version.

RhinoCom is beautifully integrated with the WPS, and it's not just skin deep. The "Rhinos" (easiest to describe as phone book entries) are SOM objects organized in an OS/2 notebook, though you can view them in a "Details" view, as well. You change fonts and colors using the Font and Color palettes. REXX (with some extensions) is the macro language. The program can create a script by watching your keystrokes, so you don't need to become a wizard at REXX—but the capability is always there.

It's difficult to find anything to complain about in RhinoCom. My biggest wish is that the program kept track of the number of times I call a BBS and let me sort BBSes in that order. I'm most likely to call the BBSes that I know and like, after all, and I don't want to have to muck through other listings to get there. Overall, however, RhinoCom is an excellent program and especially well suited to telecommunications beginners. -ES

TalkThru

Software Corp. of America's

TalkThru is clearly intended to be a terminal emulation program geared to working with midrange systems and mainframes, but it works just fine as a general communications

program. TalkThru works with IBM Communication Manager, supporting IND\$FILE transfers and EHLLANG and provides a CID installation scheme. It connects over a mode

ACDI, a shared serial device (using LAN Server or O'Warps Server), NetBIOS, and TCP/IP. It includes almost every terminal emulator imaginable and lets you configure them precisely. For example, onscreen buttons allow you to easily navigate through sessions using a "virtual keyboard."

You'll find TalkThru comfortable if you're also comfortable with mainframe, but it's less than exciting for PC users. The interface is utilitarian and stodgy; little attention has been given to aesthetics. However, many people don't choose a communications program because it's pretty. If it's screaming you're after, TalkThru's proprietary AUTOPILOT communications language can be compiled and worked with REXX or compiled into languages like C and COBOL; it's also DDE-enabled.

TalkThru isn't especially OS/2-like, with little Windows integration. While my productivity isn't diminished by the lack of the ability to drag-and-drop icons or fonts, I'm disappointed that the settings in the dialing directory aren't as good as the settings in the dialing directories don't use notebooks.

TalkThru is far from an end-user communication program, but it can be used that way. It uses IBM's TCP/IP directly (V-Modem is necessary), so Internet access is streamlined. While the program generally performed well, it doesn't have any of the niceties included in its general-use competition. TalkThru's strength is clearly its ability to communicate with nearly any system. Best thought of as a minimal emulation program with general communication

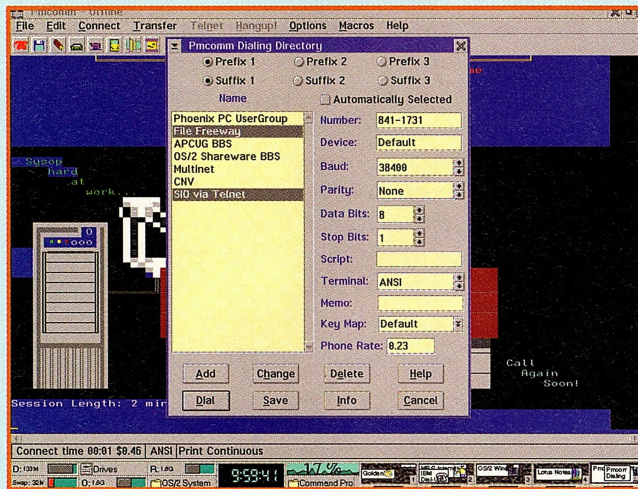


Figure 4: Pmcomm's interface is functional but shows just a bit too much of the bare metal.

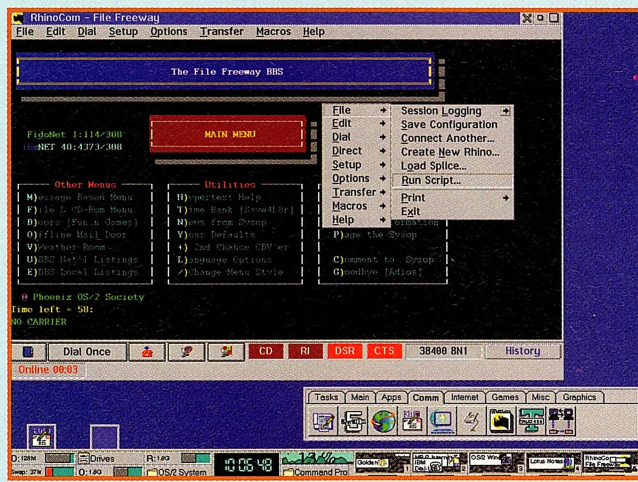


Figure 5: RhinoCom follows all the Workplace Shell rules and includes a configurable status bar.

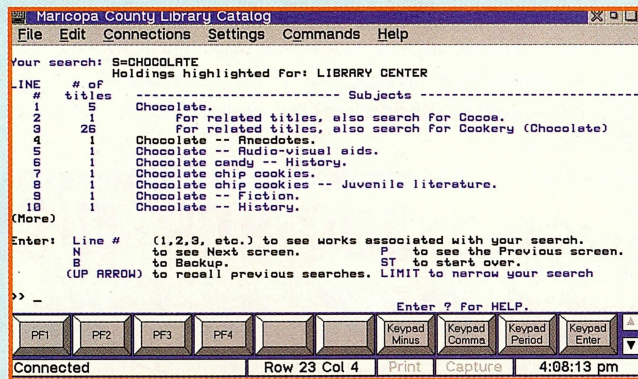
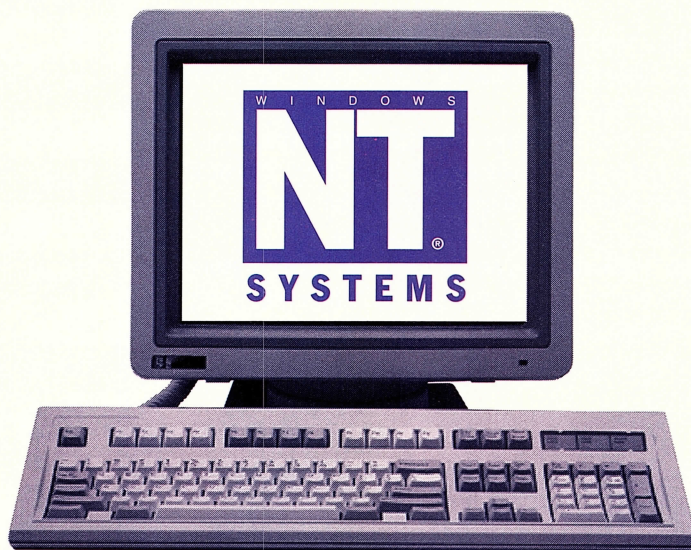


Figure 6: TalkThru's strength is its range of terminal emulations.

FREE SUBSCRIPTION OFFER!

For fastest service visit our website at
<http://www.ntsistemas.com>



Windows NT Systems is the source of authoritative, practical, hands-on information for the management and administration of systems running Windows NT. Coming January 1997 from the publisher of Microsoft Systems Journal, Sys Admin, OS/2, LAN Magazine and UNIX Review.

*And your subscription is **FREE!**
Fax to 847-647-5972 or call 1-800-250-2429.*

☒ Please send me a subscription form for Windows NT Systems.

Name: _____

Title: _____

Company: _____

Address: _____

City/State/Zip: _____

Phone _____ Fax _____

E-mail _____

600 Harrison Street, San Francisco, CA 94107
Attn: Circulation Department

Online Service Software

While we focus in the main article on general communications applications, don't forget the special purpose software that's optimized for one particular use. An example of this sort of software is Creative Systems Programming Corp.'s Golden CommPass.

Some of the software used to access the major online services seems designed to maximize time online at the expense of the caller's pocketbook. CompuServe Information Manager for OS/2 (OS/2 CIM), included in OS/2 Warp's Bonus Pack, is one example. Fortunately, CompuServe users can buy Golden CommPass, which neatly solves the oh-my-the-clock-is-ticking problem.

Golden CommPass is a nifty, multithreaded client software that is designed to reduce online time and costs. While it doesn't offer the fancy, graphical menus of OS/2 CIM, it more than makes up for that in speed.

Golden CommPass lets the user set up an automated pass that can gather all new messages, just all waiting messages, or just a list of all message topics, as well as a list of files. You can also download weather maps or stock portfolio listings.

Thanks to its multithreading, once the actions are complete for a given forum, you can start reading and replying to messages or marking topics or files for download while the program works on the next forum or operation. When it's finished its first pass chores, Golden CommPass logs off, so you're not sitting there with the meter running while you read your mail.

Once you answer messages, mark files for download, and perform other tasks, you run a second pass that uploads the replies and downloads the files. This pass is quick and efficient but not necessarily a money saver; you'll have a tendency to do more with CompuServe using Golden CommPass than you might with a slower package. Golden CommPass gives you a lot more bang out of CompuServe for your buck.

Dennis Fowler

benefits, you'll be pleased if you use it in that manner. -ES

TE/2 Pro

Once upon a time, I said of TE/2 Pro's predecessor, TE/2: "The character-based user interface feels like a refugee from the 1980s." Boy, have things changed. TE/2's old character-based version is still around for users who feel more comfortable with raw UNIX than with the Workplace Shell, but Oberon Software's TE/2 Pro is a whole 'nother program.

TE/2 Pro knows all about the Workplace Shell, and it knows how to use it, too. While it's not the fastest redrawing program, it's better than many and makes good use of the WPS's features. This program is not one that's been hijacked from its character-based incarnation and dragged kicking and screaming into the GUI age.

If you love REXX programming, you can still customize TE/2 Pro to your heart's content. But the program's interface now has an object-oriented look and feel that will make

those of us who are happiest with a mouse in our hand cheerful as well.

TE/2 Pro also comes ready for the business world with emulations for ANSI, VT102, IBM3101, and TTY. The program supports Kermit, X-Modem, and Z-Modem, among others, for all your downloading needs.

So far, it's ordinary, you might be thinking. Ah, but TE/2 Pro goes far beyond the hum-drum to become an outstanding communications program. And I assure you, after my first exposure to the program years ago, no one is more surprised than I am!

The new and improved TE/2 Pro includes support for multiple, simultaneous sessions—and it really works. You can even do multiwindow chat and scrollbar. For a vendor to pull off the latter without making hash of the screen is nothing short of a small miracle.

This new star on the OS/2 Warp telecommuting sky also can work as a Telnet client through TCP/IP via OS/2 Warp Connect and Merlin's TCP/IP stacks. The program includes Named Pipe support, as well.

Table 1: Comparing the contenders.

	ChipChat
Terminal Emulation	
ANSI	x
VT100/VT102	x
O+Avatar	
TTY	x
Ripterm	
VT52	
VT220	x
VT320	x
VT330	
VT340	
TYMNET78/79	
IBM3101	
TeleVideo 912 through 955	
Tektronix 4010/4014	
Wyse 50	
TN3270	
DG217	
DB411	
DG413	
OS2You	
Macro language	REXX
Host mode	
File transfer protocols	
X-MODEM	x
Y-MODEM	x
Z-MODEM	x
CompuServe B	x
Kermit	
Support external protocols?	No
HyperProtocol	
IBM IND\$FILE	

Review

HyperAccess	LiveWire	Pmcomm	RhinoCom	TalkThru	TE/Pro	Zap-O-Comm
X	X	X	X	X	X	X
X	X	X	X	X	X	X
	X				X	
X	X	X		X	X	X
Add-on						
				X		
X						
X			X	X		
				X		
				X		
				X		
				X	X	
				X		
				X		
				X		
				X		
			X			
			X			
			X			
	X					
REXX	REXX	Proprietary, with REXX calls	REXX	Proprietary and REXX (compiled)	Proprietary and REXX	Proprietary and REXX
Yes	Yes	Yes	Yes	No		Yes
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	
	X	X	X			
X	X		X	X	X	X
No	No	No	Yes	No	Yes	Yes
X						
		x (Downloads only)		x		

Review

TE/2 has always had a solid core of loyal fans. With this new version, the program shows that it can be more than an amateur success. Now, it finally lives up to the name TE/2 Pro.

-SJV-N

Zap-O-Comm (ZOC) 2.14

EmTec Innovative Software's Zap-O-Comm is not object oriented. The dialing directory is a directory, for example, not a collection of objects, and it only supports a single phone book holding 500 entries. On the other hand, your favorite service on the directory can be placed in the drop-down menu under Device to allow dialing with the touch of a few keys.

Terminal emulations are limited, as are FTPs. One nice touch to ZOC's Z-Modem implementation is the automatic pop-up Upload dialog box, which has a list of files in the Upload directory to choose from, as well as the ability to browse other drives and directories for the file to upload. ZOC supports external protocols; but implementation is not for the novice, however.

ZOC has its own script language, but serious automation will convince you to use REXX. It is easy to have ZOC learn a simple logon routine; going beyond that does require REXX programming knowledge. Macro buttons and keys are also supported.

You can fully automate session logging; each time you call a service the log is automatically started with a

unique name (thanks to the use of variable inputs such as service name, date, and time). You can also log directly to the printer. ZOC can keep a record of each phone call made—service, number, date, time, and duration—and a monthly cost tracking capability is included.

A built-in JPG viewer allows you to see an image as it downloads and to abort the transfer if it is not what you wanted.

There are many tweaks and adjustments that the power user can make to ZOC, such as changing the text-scrolling speed, but it will require some digging through the menus to find and implement them. Registering the shareware ZOC brings you a 112-page loose-leaf bound manual which, unfortunately, lacks an index.

ZOC is not as fast to load as Livewire, but it is very responsive as it runs. It doesn't have the gloss or features of HyperAccess for OS/2, or the object orientation of Livewire, but it is an excellent, stable communications program. The basic functions are easy for anyone to use, but going beyond them requires a willingness to do some digging to turn them up. For this reason an experienced computer user would be more comfortable with it than a novice. -DF

OS/2

Dennis Fowler is a contributing editor with Computer Shopper magazine, where his monthly

Table 1: Cont'd from pp. 60-61.

ChipChat	
Connections	
Comm ports	Yes
TCP/IP support	
ISDN	No
Built-in TCP/IP tools	Telnet
Named pipes	
Int14/NASL	Yes
Session/transaction logging	Yes
Cost logging	
Multiple phonebooks?	Yes
Image viewer	GIF
Multimedia support	No
Chat mode	Yes

column, "Treading the Boards," can be found. Dennis can be reached at dfowler@norwich.net.

Esther Schindler is senior contributing editor with OS/2 Magazine and author

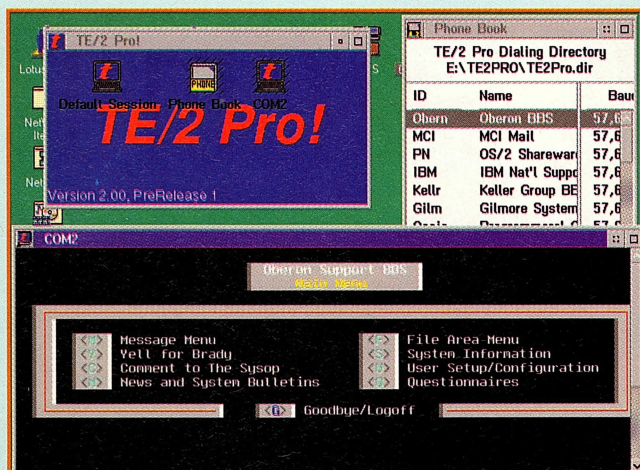


Figure 7: TE/2 Pro's colors are a little on the lurid side, but they do make it easy to see what's what.

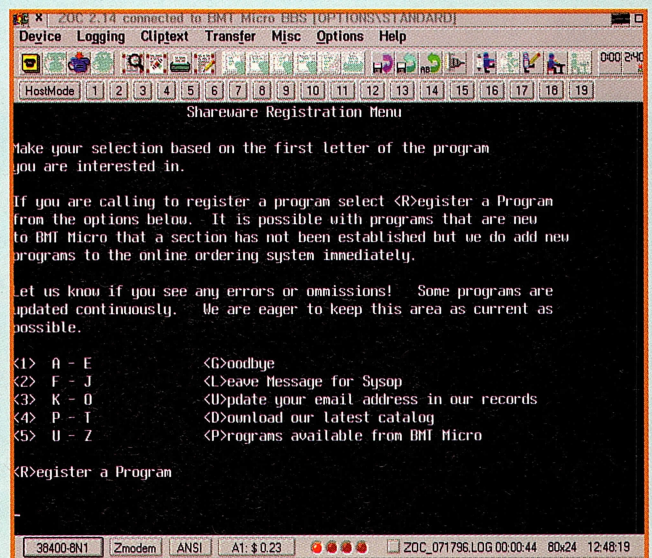


Figure 8: ZOC terminal screen showing the well-loaded button bar and menu bar. Note modem lights on status bar at bottom of window.

Review

HyperAccess	LiveWire	Pmcomm	RhinoCom	TalkThru	TE/Pro	Zap-O-Com
Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Yes, with Modem	Yes, with V-Modem	Yes, PP V-Modem	Yes P and SLIP	
No	No	No	No	No	No	No
Telnet	Telnet	FTP upload/download, by filename; telnet	Telnet	Telnet	Telnet/FTP	Telnet
Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes				Yes		Yes
Yes	Yes	Yes	Yes (Can be automated)	Yes	Yes	Yes
		Minimal	No	No		
		Yes	Yes	Yes	Yes	
No	GIF (During download)	No	No		JPG	
Yes	No	Yes	Yes	No	No	Yes
Yes	No	Yes	No	No	No	No

of The New Riders Guide to Modems. She can be reached on the Internet at 72241.1417@compuserve.com.

Steven J. Vaughan-Nichols is chairman of the Internet Press Guild and a freelance writer based in Lanham, Md. See

what he's currently up to on the World Wide Web at <http://access.digex.net/~sjvn/vna.html>.

Resources:

ChipChat Corporate Communicator (\$299) ChipChat Wireless Communicator (\$99)

ChipChat Technology Group
(313) 565-4000
Fax (313) 565-4001
WWW <http://www.chipchat.com/>
READER SERVICE NO. 108

HyperAccess 6.01 for OS/2 (\$129)

Hilgraeve Inc.
(800) 826-2760, (313) 243-0576
Fax (313) 243-0645
WWW <http://www.hilgraeve.com>
READER SERVICE NO. 109

LiveWire 3.2 (\$43; with printed manual, \$73)

Office Solutions
(800) 897-2777, (310) 439-5567
Fax (310) 438-7888
WWW <http://www.datamirage.com>
READER SERVICE NO. 110

Pmcomm 2.40 (Electronic documentation, \$55; full version, \$99)

Multi-Net Communications
(541) 883-8099
WWW <http://www.multinet.com/mnc/index.html>
READER SERVICE NO. 111

RhinoCom 1.5 (\$199) RhinoCom Home 1.5 (\$99)

Rhintek Computer Engineering
(800) 234-4546, (410) 730-2575
Fax (410) 730-5960
WWW <http://www.rhintek.com>
READER SERVICE NO. 112

TalkThru for OS/2 (Text, without VT340 emulation, \$190; graphics, with VT340 emulation, \$350)

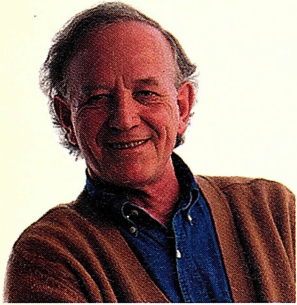
Software Corp. of America
(800) 966-7722 (203) 359-2773
FAX (203) 359-3198
WWW <http://www.talkthru.com>
READER SERVICE NO. 113

TE/2 Pro (\$79)

Oberon Software Inc.
(507) 388-7001
Fax (507) 388-7568
WWW <http://prairie.lakes.com/~oberon/>
READER SERVICE NO. 114

Zap-O-Comm 2.14 (License until v. 2.99, \$70; disk and manual, \$20; ISDN kit, \$35)

EmTec Innovative Software
Order through BMT Micro
(800) 414-4268, (910) 791-7052
Fax (910) 350-2937
E-mail thomas.bradford@bmtmicro.com
READER SERVICE NO. 115



Don't Write Off the Big Blue Dinosaurs

BY STAN KELLY-BOOTLE

I present 15 books this month, an "End Notes" record soon to be acknowledged by Guinness Plc, an overdue reward for my undiluted years of loyal consumption. It's hard to mention the Guinness without recalling Margaret Barry's eponymous Dublin street ballad that begins, "Come all you t'irsty travelers..." and ends, predictably, "... down by the Liffeside." Ah, yes, the books—they all come from the small, but nominally optimistic, Maximum Press. Its current catalog lists 16 titles, including *Real World Client/Server* by Steve Krantz, which I reviewed in February 1996. Maximum Press waxeth in the presumably hurricane-free part of Florida known as Gulf Breeze. Or perhaps this is Floridian braggadocio, matching that of the 10-gallon Texan coffee cup labeled "demitasse?" (Sodden thought: "Demitasse" may be the only Java-related term that will never be trademarked.)

Maximum Press has developed and exploited a distinctive genre: insider-books on IBM technologies and strategies written, naturally, by well-placed (or recently displaced but still loyal) IBM employees. This niche is proving to be as smart and huge as a huge smart cache, reflecting IBM's wide-ranging, polymorphic market presence. Thus, there's a *Business Perspective* series by Jim Hoskins, aimed at IS managers and bottom-line bean counters, with titles such as *IBM Personal Computers*, *IBM RISC System/6000*, and *IBM AS/400*.

Maximum Press also offers a more technical set of titles under the *Exploring* rubric. You can explore

IBM's Print-on-Demand Technology, *The IBM PC Power Series*, *The Power-PC Revolution*, and *The IBM AS/400 Advanced 36*. Don't expect any grand Tolstoyan masterpieces—these books are relentlessly pro-IBM tracts in near-IBM prose. They carry the standard, voluminous disclaimers—mandated, alas, by our overly litigious society—all of which boil down to "Do not rely or act on the information provided!" I am always relieved when the preface omits the warning, "Do not attempt to stuff this book up your nasal passage or comparable orifice as listed in Appendix C." On the bright side, Maximum Press offers a readable alternative to the dense, dispersed official IBM documentation.

Two books in the *Exploring* sequence struck me as being particularly relevant to the OS/2 community: *Exploring IBM's New Age Mainframes* by John Young (\$34.95, ISBN 1-885068-05-0) and *Exploring IBM Client/Server Computing* by David Bolthouse (\$32.95, ISBN 1-885068-04-2). Neither book has much to reveal about OS/2 per se—in fact, it's quite unnerving to find that the index entry for "OS/1" in the Bolthouse book saying "See Operating System/2 (OS/2)," which, in turn, points only to a single p. 56. The Young book's index entry for "OS/2" refers you to "PL/1 for OS/2" (p. 238) and "VisualGen" (p. 240). The real import of these two books is to make the point that the "dinosaur" mainframes, in particular IBM's System/390 family, are very much alive; indeed, growing in leaps and bounds. The unwashed PC laity

has no idea of the 2 million complex transactions posted each hour to a terabyte database—it sees a world PR-dominated by Microsoft's desktop, client-ridden software. The truth is that 70% of global software sales relate to the *server* side of the equation. The reassuring message from Maximum Press is that IBM has a unique set of proven, enterprise-wide solutions, far beyond Microsoft's reach.

Postscript

By one of those terrible, temporal quirks that plague all computer-book authors, Bolthouse extols the successful deployment of the IBM C/S system for the 1994 Winter Olympics at Lillehammer, Norway, and goes on to predict how well the system will scale up for the 1996 Summer Games in Atlanta. In fact, the Atlanta system failed miserably, distorting the gist of all those expensive TV ads: "Just think what IBM can do for your business." Bolthouse writes, "When the [Atlanta] Games are over, IBM will generate three trillion bytes of data." Far too late! I suspect that the sentence should read: "Before the Games are over, IBM will have generated three trillion bytes of data." Wait, here's a newsflash just in from the IBM Olympics network: "Jesse Owens wins the 10 yard dash." **OS/2**

Stan's latest book is *The Computer Contradictionary* (MIT Press). He welcomes e-mail via skb@crl.com. Try his Web page at <http://www.crl.com/~skb>.

NATURAL SELECTION?

There's nothing natural about it!

You had to kill off the Altarians to colonize Antares IV. Now, the Drengin Empire plans to do the same to you. After all, it's only natural...isn't it?

These are strange, hostile worlds filled with inhuman races who may try to befriend you or destroy you as you build entire civilizations from mere dust and your own ingenuity. More than a game, Galactic Civilizations 2 is a whole new universe of possibilities, where you can create economic, social, and military systems, negotiate trade rights, even fight intergalactic wars. You hold the fate of millions of life-forms in your hands. But, your decisions also carry the weight to determine your own destiny. Will your path be as a generous ruler? . . . or as a shrewd negotiator? . . . or will you become the most heinous warlord in the history of the universe? Galactic Civilizations 2 is the ultimate in sci-fi strategy gaming!



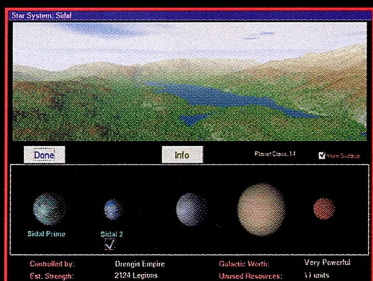
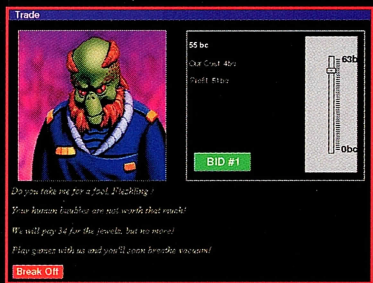
GALACTICTM
CIVILIZATIONS

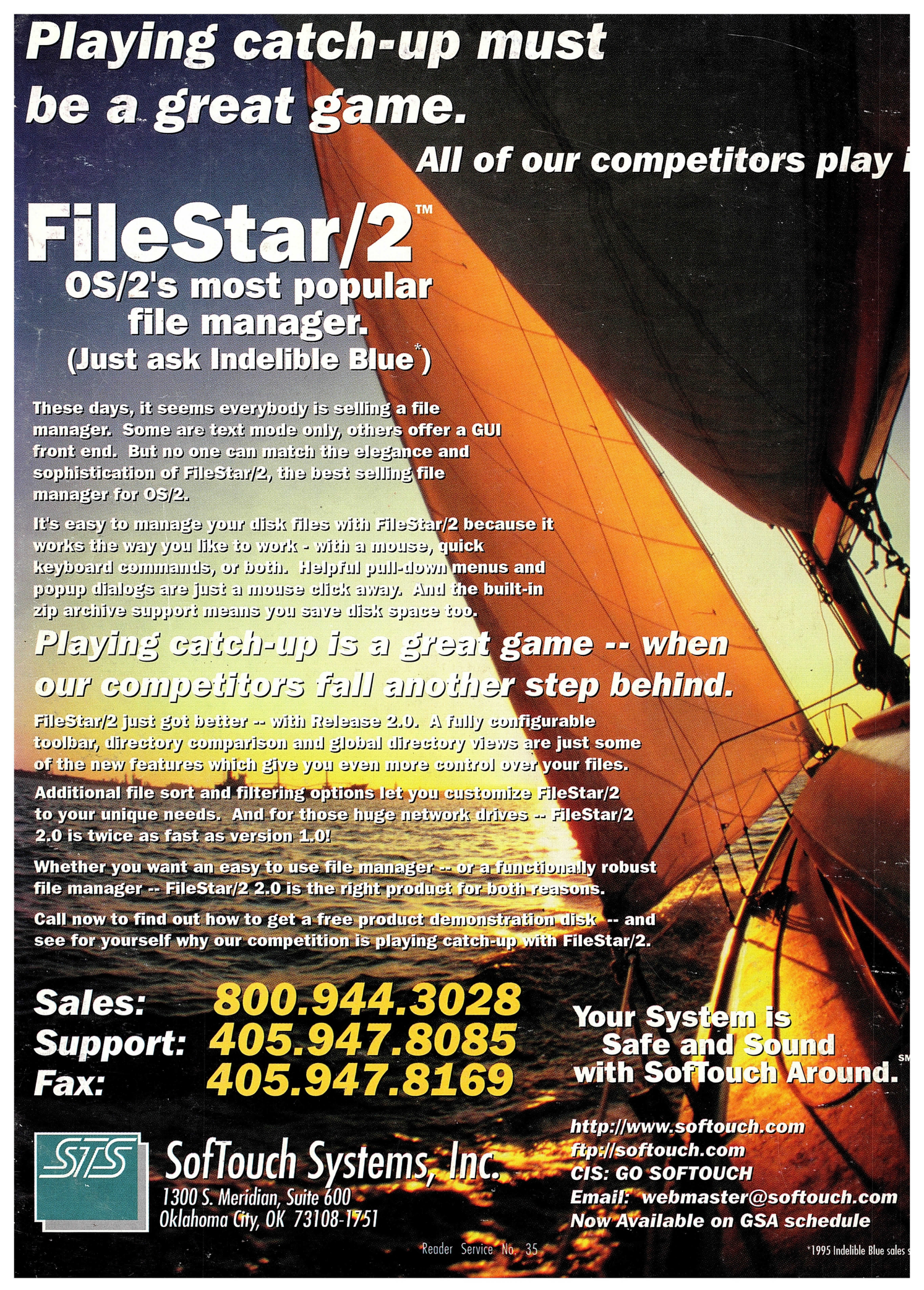
Visit your local retailer to get your claws on the Hottest OS/2 game of all time.

Ready for
OS/2[®] WARP

Phone: 313-453-0328 • Email: sales@stardock.com • Web: <http://www.stardock.com> • ORDERS: 1-800-672-2338

Stardock[®]





**Playing catch-up must
be a great game.**

All of our competitors play i

FileStar/2TM

**OS/2's most popular
file manager.
(Just ask Indelible Blue*)**

These days, it seems everybody is selling a file manager. Some are text mode only, others offer a GUI front end. But no one can match the elegance and sophistication of FileStar/2, the best selling file manager for OS/2.

It's easy to manage your disk files with FileStar/2 because it works the way you like to work - with a mouse, quick keyboard commands, or both. Helpful pull-down menus and popup dialogs are just a mouse click away. And the built-in zip archive support means you save disk space too.

***Playing catch-up is a great game -- when
our competitors fall another step behind.***

FileStar/2 just got better -- with Release 2.0. A fully configurable toolbar, directory comparison and global directory views are just some of the new features which give you even more control over your files.

Additional file sort and filtering options let you customize FileStar/2 to your unique needs. And for those huge network drives -- FileStar/2 2.0 is twice as fast as version 1.0!

Whether you want an easy to use file manager -- or a functionally robust file manager -- FileStar/2 2.0 is the right product for both reasons.

Call now to find out how to get a free product demonstration disk -- and see for yourself why our competition is playing catch-up with FileStar/2.

Sales: 800.944.3028
Support: 405.947.8085
Fax: 405.947.8169

**Your System is
Safe and Sound
with SoftTouch Around.**



SoftTouch Systems, Inc.

1300 S. Meridian, Suite 600
Oklahoma City, OK 73108-1751

<http://www.softouch.com>

<ftp://softouch.com>

CIS: GO SOFTOUCH

Email: webmaster@softouch.com

Now Available on GSA schedule